DOCUMENT RESUME

ED 382 148 HE 028 349

AUTHOR Lussier, Thelma G.
TITLE Doctoral Students at the University of Manitoba: Factors Affecting Completion Rates and Time to Degree by Gender and by Field of Study.
PUB DATE Apr 95
NOTE 108p.; Master's Thesis, University of Manitoba, Canada.
PUB TYPE Dissertations/Theses - Masters Theses (042) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Academic Advising; *Academic Persistence; Departments; *Doctoral Degrees; Doctoral Programs; Foreign Countries; Higher Education; Intellectual Disciplines; Interpersonal Relationship; *Sex Differences; *Student Attitudes; Student Financial Aid; Universities
IDENTIFIERS *Time to Degree; *University of Manitoba (Canada)

ABSTRACT

The completion rate and median time to degree of three doctoral cohorts at the University of Manitoba were analyzed by gender and by field of study and the results were compared to studies elsewhere. To evaluate factors affecting students' progress, a mail questionnaire was sent in the fall of 1993 to all students (N=105) first admitted to the doctoral program in the 1984-85 academic year which included those who had graduated, withdrawn, or who were still enrolled. Completion rates and time to degree were generally more favorable at the University of Manitoba, revealed less disparity between women and men, and displayed different patterns by field of study, compared to those reported at other universities in Canada. Results of the survey suggest that the progress of students is affected by the financial and emotional support they receive, the various components of the advisory relationship, and the departmental "climate." Women experienced almost every aspect of the doctoral program differently, and with different intensity, leading to the conclusion that similar studies must take gender into account. Factors which most affected women were interpersonal ones whereas men's concerns were primarily academic. The survey instrument is appended. (Contains 32 references.) (Author/DB)

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DOCTORAL STUDENTS AT THE UNIVERSITY OF MANITOBA: FACTORS AFFECTING COMPLETION RATES AND TIME TO DEGREE BY GENDER AND BY FIELD OF STUDY

BY

THELMA G. LUSSIER

A Thesis
Submitted to the Faculty of Graduate Studies
in Partial Fulfillment of the Requirements
for the Degree of

MASTER OF EDUCATION

Division of Post-Secondary Studies
University of Manitoba
Winnipeg, Manitoba

© April, 1995

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Acknowledgements

I would like to thank the members of my committee for their advice and encouragement and the Faculty of Graduate Studies for their interest and support. A special thanks is extended to my advisor, Dr. Jacqueline Stalker, for being both mentor and role model.

Abstract

The completion rate and median time to degree of three doctoral cohorts at the University of Manitoba were analyzed by gender and by field of study and the results were compared to studies elsewhere. To evaluate factors affecting students' progress, a mail-out questionnaire was sent to the entire 1984-85 cohort which included those who had graduated, withdrawn, or who were still enroled. Completion rates and time to degree were generally more favourable at the University of Manitoba, revealed less disparity between women and men, and displayed different patterns by field of study, compared to those reported at other universities in Canada. Results of the survey suggest that the progress of students is affected by the financial and emotional support they receive, the various components of the advisory relationship, and the departmental "climate." Women experienced almost every aspect of the doctoral program differently, and with different intensity, leading to the conclusion that studies must take gender into account. Recommendations are made for other researchers, the Faculty of Graduate Studies, and the University of Manitoba.

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Introduction

Within Canada relatively little is known about the completion rates of students in the various doctoral programs, what factors affect their completion rates and whether these factors differ between women and men. The problem is not uniquely Canadian. The problem is so widespread that "across the Western world, there is a clear consensus that no definitive statistics exist on the progress of candidates through doctoral programs" (Cude, 1991, p. 1).

One of the first attempts to provide national data compared the total number of doctoral students enroled over a period of years to the total number who graduated, and calculated that the overall "attainment ratios" in Canadian universities was, at best, about 25% (Cude, 1987). Since then, other studies have been conducted in Canada, using varying methodologies and have yielded completion rates in the 50% to 70% range (Scheinin, 1989; Gardner & Judge, 1989; Yeates, 1991).

The Report of the Commission of Inquiry on Canadian University Education emphasized the lack of detailed statistics on graduate attrition and commissioned its own study which yielded only "crude data" (Smith, 1991). It estimated the attrition rate to be about one-third or, conversely, the completion rate to be about two-thirds of the original enrolment. The Commission suggested that the time required to complete a doctoral degree should be approximately four years; it also recommended that statistics on both the median time expected to complete a doctoral degree and the actual length of time taken to complete that degree be collected at each institution and that the results be disseminated nationally.

The dearth of information about doctoral completion rates, time to degree, and the factors which affect them has serious implications for universities in Canada. Institutions will need to develop these data for three reasons.

First, to the extent that universities hope to garner an increase or maintenance in funding, they will have to demonstrate the effectiveness and efficiency of their graduate programs. This ties in directly with the need for higher skilled human resources in order to meet the competition of the global economy. The public needs to be shown how the doctoral graduates of the universities will contribute to the economic well being of Canada in the future. Universities will not be able to demonstrate their cost effectiveness unless they can justify the length of time and the resources dedicated to training doctoral graduates.

Second, the need for information about doctoral programs is directly related to questions of accessibility of, and equitable treatment in, doctoral programs (Hall & Sandler, 1986). Women in Canada comprise more than half of the bachelor's graduates and 45% of the recipients of master's degrees, but they comprise only about one-third of the doctorates awarded. Unfortunately, reliable data on visible minorities, aboriginal or the disabled do not exist. Employment equity programs are creating demands for doctorates from all of the currently under-represented groups.

Finally, at the university level, those responsible for graduate programs need the information so that they can effectively utilize their resources to strengthen graduate programs in general, and doctoral programs in particular. While the provision of statistical data would be an important contribution in terms of addressing the public accountability issue, more precise information is needed in order to address the issues of equity and those issues specific to any one institution.

Literature Review

In the first section of the review, studies which provide actual data on completion rates and time to degree are examined. In the second section, the literature addressing factors which influence the doctoral completion rate and time to degree is reviewed. Studies from the United Kingdom, the United States, and Canada are included in the review. Where available, the breakdowns by gender and field of study also are reviewed.

Many of the studies use an approach called "cohort analysis." A cohort is defined as a group of students who are first admitted to a program in a given year. That group, or "cohort", is then followed to determine whether they graduated, how long it required, and other variables.

The difficulties with comparisons among studies is due to two major factors. The structure of postgraduate education can differ greatly among countries, making comparisons of time lines difficult. Even when overall structures are similar, the unique mandate and program mix of any individual institution limit the comparisons between even the same disciplines at different universities. For example, if a doctorate in a given program at one university can be pursued only on a full-time basis, while another university permits part-time study, the completion times will be affected.

Completion Rates and Time to Degree

In the United Kingdom, the first attempt to collect overall figures for completion rates was in a 1966 study of students who entered postgraduate studies in 1957 (Rudd & Hatch, 1968). In this study, the completion rate for doctoral students was about 78% after nine years in the program. The time to

degree was shorter for science-related disciplines than for those in the social sciences. The length of time to complete the program is not comparable to Canadian programs because students in the United Kingdom enrol in graduate studies directly after their first degree; therefore the total time to degree includes what, in Canada, would be the master's program.

In 1977, also in the United Kingdom, a survey of a sample of students from 1970 showed a completion rate of about 60% after seven years (Williamson, 1981). The results are not comparable to the earlier study because of the different time interval. Another limitation is that the response rate of the sample was only 50% and a higher response rate was obtained from those who had successfully completed than from those who did not. The difference in the structure in British programs and the lack of a gender breakdown limit the usefulness of comparison with North American studies.

On the other hand, many of the American studies on entering doctoral cohorts do contain data with respect to women. Early studies show that women enroled in doctoral programs are less likely than men to attain the degree (Feldman, 1974; Patterson & Sells, 1973).

Gunn and Sanford (1988) followed several cohorts of doctoral students up to eleven years after their initial entry into the doctoral program at the University of North Carolina at Chapel Hill. At the end of eight years, which is their normal maximum completion time, about 60% had graduated. This figure was normalized to exclude those who graduated with a master's degree but did not continue with a doctorate. After eleven years, the rate for this same group rose to 76%. The authors stated that the rate was very similar for men and women, although women had a higher graduation rate in the first four years and

the ninth to eleventh years. They also found that, in the more recent cohorts, both men and women were taking longer to complete their degrees than in earlier years (Gunn & Sanford, 1988).

In 1991, a cohort study was conducted at three major research universities in the United States. The estimated percentage of doctoral students who had graduated after eight years ranged from 40% to 55% for women in a cluster of disciplines which included mathematics, computer science, economics and psychology. The comparable rate for men was 40% to 65%. In another cluster, which included the areas of philosophy, history, English, sociology, and political science, the rate was 25% to 29% for women and 32% to 36% for men. Women were also less likely to achieve the PhD candidacy after five years of study (Zwick, 1991).

Bowen and Rudenstine (1992) conducted an extensive study of cohorts entering a doctoral program between 1962 and 1986 at one of ten major American universities. The study was limited to six fields within the arts and sciences, including English, history, political science, economics, mathematics, and physics (Bowen & Rudenstine, 1992, p. 5). In one subset of the analysis on nine of the institutions, they found that about half (48.9 %) of all students who entered those six specific doctoral programs between 1972 and 1976 eventually graduated, but that attrition was high at all stages in the program (Bowen & Rudenstine, p. 105).

In terms of "completion" rates, their study defined two different kinds of completion rates, minimum completion rate (MCR) and truncated completion rate (TCR). The former is the more generally used term, in which the completion rate is determined by the percentage who have graduated by a specified year.

The figure of 48.9% completion rate cited earlier is a "minimum completion rate", in that it refers to all the students in the 1972 to 1976 cohorts who had graduated by the specified year of 1989 (Bowen & Rudenstine, p. 108). The designation of the "truncated completion rate" stems from the need to identify what percentage of students has graduated within a certain period from the time they entered, for example, after four, seven, or ten years. A truncated completion rate allows for more useful comparison of time series data between recent cohorts who have had only a few years to finish their program, and much earlier cohorts (Bowen & Rudenstine, p. 106).

The authors made the point that calculations of "time to degree" should be based on medians rather than averages, due to the fact that averages can be more strongly influenced by extreme observations. The median time to degree for their 1972 - 1976 six field cohort from the nine institutions was 6.7 years (Bowen & Rudenstine, p. 114). They also showed that calculating median time to degree should be done on cohorts based on year of entry, rather than year of graduation. An earlier study, done on the basis of graduation year, seemed to show that the average time to degree had increased by 20% since 1967 (Tuckman, Coyle & Bae, 1989). By comparing the two methods based on national data, Bowen and Rudenstine demonstrated that the year of graduation method can introduce a "statistical artifact" into the calculation when there are large fluctuations in the size of entering cohorts (1992, p. 116). They concluded that the increase in time to degree was in the order of ten percent overall in the United States in the last 15 to 20 years, but that current rates are only slightly higher than they were prior to the 1960s (1992, pp. 117-118).

Bowen and Rudenstine (1992) demonstrated that completion rate and time to degree both varied directly with the "field of study" or discipline of the students (p. 123). Using data from eight of the institutions over the period 1967

to 1976, they determined that the minimum completion rates were 49.8% for English and history (Humanities), 54.7% for economics and political science (Social Sciences), and 64.9% for mathematics and physics (Natural Sciences). The same pattern was evident even after controlling for availability of financial aid, and when separately comparing women's and men's outcomes. Women did, however, still have lower completion rates than men in each grouping. The completion rate for women in the Natural Sciences was 58.8% compared to 65.3% for men. In the Social Sciences it was 50.8% for women and 55.7% for men, while in the Humanities it was 44.8 and 51.8% respectively.

Using a smaller 1967 to 1971 cohort from the same eight institutions, the median time to degree for each of the following fields was: English, 6.4 years; history, 7.2 years; political studies, 6.8 years; mathematics, 5.1 years; and physics, 6.2 years. The median time to degree was from 0.3 to 0.6 years higher for women in every discipline (Bowen & Rudenstine, p. 132).

The definitional problems associated with establishing cohorts, completion rates, and time to degree have been significantly clarified by this detailed study. As a result, clear benchmarks for both methodology and data comparison have been established.

Overall, the international literature suggests the importance of defining cohorts by year of entry and calculation of median time to degree (Bowen & Rudenstine, 1992), and of paying attention to the differences with respect to discipline and gender (Gunn & Sanford, 1988; Zwick, 1991; Bowen & Rudenstine, 1992).

The data and literature on completion rates for men and women in doctoral programs in Canada is less extensive and less comprehensive. No national cohort data exist and most studies conducted are on a provincial or institutional basis. Some of the Canadian data are available only from internal reports of the institutions.

One of the very early attempts to calculate the percentage of those enroled in doctoral programs in Canada who actually graduated was undertaken in The Ph.D. Trap (Cude, 1987). The number of degrees granted was calculated as a percentage of the number of enrolments between 1969-70 and 1975-76, which Cude called an "attainment ratio." Cude concluded that universities, at best, graduate one out of every four enroled doctoral students. This was not a cohort analysis but was based on a comparison of output over input over a period of time. It did not take into account students who were still continuing or those who had been granted time extensions.

At the University of Waterloo, the total enrolment in doctoral programs between 1984 and 1988 was compared with the total number of doctoral degrees granted during that same period. The success rate or "attainment ratio" was 29% for women and 40% for men (Gardner & Judge, 1989). The authors noted, however, that actual withdrawals during that period were 17% for women and 13% for men so that, over time, the maximum possible completion rates could be 83% and 87% respectively. This assumed that all those who had not graduated or withdrawn already would eventually graduate. Therefore, those rates could be considered the "best case scenario."

As another way of examining the data, a calculation was made on the number of students who graduated from the doctoral programs in 1988 as a percentage of those who enroled four years earlier in 1984. In this method, a cohort is assumed without actually tracing individual students. The results show a 58% success rate for women and a 71% success rate for men. The lower rate for women was partially accounted for by the larger number of women in the clinical program in psychology which takes longer due to internship requirements. Thus, these two methods estimate an attainment ratio ranging

from 29% to 58% for women and from 40% to 71% for men and are in contrast to Cude's findings. The wide range in outcomes demonstrates the difficulty of employing a simplistic estimation model and suggests the need for cohort analysis. A cohort analysis provides information on the average length of time required by a student to complete a program; this information can be used to address questions of resource allocations.

In another analysis of the progress of students through the doctoral program, a University of Toronto study provided summary data on a total of five cohorts of students who entered between 1978 and 1982 (Scheinin, 1989). The analysis was done in 1988 so that the cohort entering in 1978 had nine years to graduate, while the 1982 cohort had only six years in which to complete their degree requirements. Therefore, the graduation rate is an average for the whole group. This is a limitation for the purpose of comparisons with the results of other studies. A better method, as suggested by Bowen and Rudenstine (1992), is to analyze each cohort after the same number of years has elapsed (truncated completion rate) to determine the range of variation and allow results from several cohorts to be averaged and compared across institutions.

Nonetheless, the data from the University of Toronto study provided useful general information. The average percentage of those students who completed after six to nine years was 52% for women and 61% for men.

Completion rates varied across the disciplines, with the social sciences and humanities having the lowest rates of 42% and 43% respectively. A total of 75% of physical sciences and engineering students and 78% of life sciences students graduated. Rates for women were slightly higher in the Life Sciences and in Education. Men's graduation rates were higher in the Humanities and the Physical Sciences and Engineering. The rates were the same for both men and women in the Social Sciences (Scheinin, 1989, p. 103).

The analysis of the data from the same study revealed a difference between the loss of men and women from the doctoral program. Over the nine year period, approximately 39% of the men dropped out by the time seven years had elapsed. The overall dropout rate for women was greater at 48%, but it did not reach this level until after eight years (Scheinin, 1989, p. 99). Two possible explanations for this result may be that women are more likely to study part-time, and therefore their decision making time frame is extended or that different factors affect their decisions. Women required an average of 6.1 years, while men required an average of 5.6 years to complete their Ph.D. Overall, a social science doctorate took the longest to complete at 6.9 years, while a doctorate in the natural sciences and engineering took 4.9 years (Scheinin, p. 105).

An analysis conducted at the University of Calgary showed different results. The study was a follow-up of the 58 students first admitted to the doctoral program in the fall of 1983. Seven years later, the overall graduation rate was 81%, with 84% of the men and 76% of the women graduating. Two students were still registered, both of whom were women (University of Calgary, Office of Institutional Analysis, 1992). These rates are considerably higher than the rates at the University of Toronto, but should be interpreted cautiously due to the results being derived from only one cohort.

The Calgary analysis included a distribution of the time to degree. The patterns were different for women and men. Only 1 woman out of the 16, i.e., 6%, completed the degree in four years or less as compared to 48% of the men. All the remaining men, except one, completed their degrees in six years or less. However, a full 25% of the women required seven years to complete their

degrees (OIA, 1992). From the data presented, it was possible to calculate an average time to degree. The average for men was 4.6 years compared to 5.7 for women; this average is consistent with the University of Toronto's finding that women required longer to complete their doctorates.

These results should be interpreted cautiously for several reasons. The numbers in the cohort were small and this was an analysis of only one cohort. The results from several cohorts would need to be evaluated before any firm trends could be confirmed. Furthermore, all the students in the cohort were admitted as full time students. Analysis of larger doctoral programs likely would include students admitted to study part time. The time to degree rate could be affected by these part-time students.

The methodology in the Calgary study lends itself to replication for two reasons. First, it utilizes a cohort analysis which implies a group of students admitted at the same time, under the same requirements, and regulations. Second, the cohort's progress is analyzed over a fixed period of time, in this case seven years, which is the normal time limit for completion of a doctorate. When combined with information on discipline and gender within each cohort, the information can be used for both inter- and intra-university comparisons.

The largest Canadian study conducted to date on graduation rates was undertaken on doctoral programs in Ontario universities by the Ontario Council on Graduate Studies. A cohort approach was used to trace the progress of five annual cohorts of doctoral students. The data were reported on only the 1980 cohort, analyzed ten years later in 1990. At that point, 57% of the total cohort had graduated. The graduation rate was 59% for men and 55% for women. Visa students had a graduation rate of 64% as compared to 56% of Canadians and landed immigrants combined (Yeates, 1991).

Of the 57% who graduated, the median time to degree was 5.0 years (Yeates, 1991, p. 4). The median time to degree for women was 5.3 years as compared to 4.7 years for men (Yeates, p. 6). The use of this statistic is different from other studies and is more useful than average time to degree because averages can be influenced by extreme cases, especially in small cohorts. Another statistic introduced in this study was a "median cohort time to completion." Yeates determined that half of the cohort had graduated in seven years. Again, the use of a median or mid-point enhances comparisons between disciplines and/or institutions. Knowing how long it takes half of any cohort to graduate also can demonstrate workload for a discipline or the kind of financial support that students would require.

A difference in graduation rates by discipline was evident in the Ontario study, with the rate being highest in the agriculture and biological sciences at 85% and lowest in the humanities at 45%. Social sciences was next lowest at 50%, followed by engineering at 60% and education/recreation studies at 61%.

The median time to completion ranged from 4.0 years in mathematics and physical sciences to 5.7 years in the Humanities, with the overall median at 5.0 years (Yeates, 1991, p. 8). The author speculated that, because visa students have higher graduation rates and are concentrated in the science area, this accounted for some of the difference. According to Yeates, visa students have a greater incentive to graduate quickly because it costs them more to study and they do not have the same prospects for employment (Yeates, 1991, p. 17).

The information in this study not only lends itself to comparison, but introduces the notion of using median time to degree for those who graduate, and also as a way of describing the cohort as a whole. The limitation is that, although graphs are provided comparing the completion rates of men and

women in the various disciplines, the data are not discussed. The graphs show a very different distribution of the time required to complete the doctorate. The cumulative percentage of women who graduated did not equal that of the men until after more than seven years in the Humanities and more than five years in the Mathematics and Physical Sciences. No data or graphs for the cohort as a whole are provided which prevent the exploration of a potentially important pattern that was shown in two other studies indicating that women graduate at a slower rate than men (Scheinin, 1989; OIA, University of Calgary, 1992).

From the review of studies of the completion rates and time to degree of doctoral students, several points merit highlighting. The methodologies used tend to vary from study to study, and may account for some of the variation in the results. Results also appear to vary greatly by discipline within an institution, so comparisons among universities should be made only at that level, due to the varying mix of programs at any one university. Variation in results also may be due to structural differences in doctoral programs between countries. In spite of these dissimilarities, some overall trends can be identified.

Almost all of the studies reviewed showed women's completion rates to be lower than men's. Completion rates generally differed by discipline and/or gender within the discipline. The length of time required to complete a doctorate also differed by discipline and by gender. Some of the studies contain analyses which concluded that women do not have the same pattern of progress in the completion of the degree (Gunn & Sanford, 1988; Yeates, 1991; Zwick, 1991; OIA, University of Calgary, 1992). In addition, the review of the literature confirmed the Smith Commission's conclusion about the lack of data from Canadian universities (Smith, 1991).

General trends in the pattern of completion rates for women and for men have been identified. In the next section, the literature is reviewed to determine what factors may affect progress of doctoral students.

Factors Affecting Progress

The literature on factors which affect completion rates and time to degree is also fairly limited, even more so if a breakdown by gender is a criterion. Most studies are concerned with only those who have graduated and the factors which contributed to the length of time for successful completion of the program, without the balancing views of those who dropped out.

In 1965, a study was conducted on a sample of doctoral degree recipients who graduated between 1950 and 1958 from 20 institutions in the southern United States. The five factors most often cited by respondents as having affected the time to degree were: discontinuity of attendance; work as a teaching assistant; the nature of the dissertation topic; writing the dissertation while not in attendance and while working full-time; and financial problems (Wilson, 1965).

Chronologically, the next study of interest is one conducted in the United Kingdom on a sample of 100 students who had taken a long time to finish or who had failed or dropped out of the program (Rudd, 1985). The author's interviews with these students led him to relate lack of academic progress to problems with the choice and scope of topic, the supervision received, and financial support (Rudd, 1985).

A very large research project undertaken at the University of California, Los Angeles (UCLA) analyzed a number of financial, demographic, and academic variables in an attempt to determine which variable was significantly predictive of time to completion (Abedi & Benkin, 1987). The results indicated

that the source of financial support was the most important variable in predicting time to doctorate. Students who relied on their own earnings as a primary source took two years longer than those with other resources. The other important variables were postdoctoral plans, number of dependents, sex, and field of study. Taken together, these variables explained a statistically significant amount of the variation in the time to degree (Abedi & Benkin, 1987, p. 10-13).

One year later, another American study tested which characteristics influence graduate student degree progress at the doctoral level. Characteristics relating to financial support and to students' perceptions of their relationships with faculty were the most important (Girves & Wemmerus, 1988). Students' perceptions of their relationship with faculty were determined by the number of faculty colleagues they had, whether they were treated as colleagues, the quality and usefulness of their advisors, and whether they had mentors. Both the financial support and the student perceptions were significantly related to an intervening variable which the authors call "involvement." This was defined as "student participation in projects and other activities outside the classroom with faculty and other graduate students" (Girves & Wemmerus, p. 185). This intervening variable of involvement was also significantly related to degree progress for doctoral students. The authors recommended further study on the applicability of the degree progress model, by gender and by academic discipline. They also suggested further study of the relationship between faculty and students as a function of academic discipline (1988).

A study of doctoral students at the University of Pennsylvania, on time to degree and completion rates, found that financial support was a significant factor in time to degree (Miselis, McManus, & Kraus, 1991). The time required to complete the doctorate was different depending upon the discipline, and women took slightly longer to complete their programs.

Another study used questionnaires and interviews to collect information from doctoral graduates from the University of California at Berkeley in order to examine gender differences in the actual experiences of doctoral students and to determine if departmental "culture" influenced time to degree (Nerad & Stewart, 1991). Using a definition of culture from organizational theory, they found major gender differences in satisfaction with departmental culture. Women were significantly less satisfied with: their professional relationship with their dissertation advisor; faculty assistance with job search; and their assessment of fairness in the distribution of financial resources. For both men and women, the time to degree was affected by their assessment of the fairness of resource distribution (1991).

In that study, a sample of women and men were interviewed. The results showed that the majority of women felt isolated and alienated in their departments. Men from minority backgrounds or with major family responsibilities also felt alienated (Nerad & Stewart, 1991). These findings reinforced those of Girves and Wemmerus (1988) and suggested that the level of integration of students into a department may affect their success.

One of the limitations of Nerad and Stewart's (1991) study was that it included only students who had succeeded. The authors acknowledged this and stated that, for every five women who completed, six dropped out. The assumption was made that this statistic referred only to the institution in the study, although it was not explicitly stated. A study would provide greater overall information if both completers and dropouts were included.

Bowen and Rudenstine (1992) considered the question of the extent to which financial support is a factor, and found that students who received financial aid had a higher completion rate and shorter time to degree, even when

controlling for the "quality" of the student (pp. 178-185). They further determined that students receiving fellowships had taken slightly less time to complete, but that students with teaching assistantships had slightly higher completion rates (pp. 185-189). They suggested that teaching leads to interaction with their colleagues and that integration may contribute to success. They concluded that the "right supporting environment" was as important as the type of financial aid, and cautioned against the proliferation of teaching assistantships (p. 194). Their conclusion reinforced the notion of "integration into a department," suggested in earlier studies, as being critical to student outcomes (Girves & Wemmerus, 1988; Nerad & Stewart, 1991).

At the University of Michigan, a survey of a sample of currently enroled graduate students was conducted to assess the quality of "the graduate experience" (Manis, Frazier-Kouassi, Hollenshead, & Burkam, 1993). For the in-progress doctoral students, the three most frequently cited sources of delay or difficulty were: lack of adequate mentoring or advising; financial concerns; and time devoted to teaching assistant responsibilities (p. iv). Women's ratings of the factors of lack of adequate advising and time devoted to being a teaching assistant were significantly higher than men's (p. 38). These factors are useful in considering actual outcomes of doctoral students.

In Canada, four studies have identified financial support as a potential factor affecting progress for doctoral students in general, and often for women in particular. A study at the University of Toronto found that women got a lesser proportion of internal fellowships and that women's share of the National Science and Engineering Research Council (NSERC) support had declined over the last several years (Scheinin, 1989). The University of Waterloo also found some evidence that women graduate students did not get the same level of support as

men (Gardner & Judge, 1989). A more recent study at the University of Toronto found that financial factors were the most important in determining time to degree, particularly in the Humanities and Social Sciences (Fletcher & Stren, 1992). Finally, a national study on tuition fees found that many students in doctoral programs withdraw because of their accumulated debt load (Stager, 1989, p. 103-114).

A study of a sample of doctoral graduates from York University found that the time to degree was significantly decreased by enrolment in a natural science discipline, Canadian citizenship, full-time registration, and increased funding (Sheridan & Pyke, 1994). The increased funding was a combination of the average funding received from all sources and the average amount of funding received from graduate assistantships.

Unfortunate experiences in doctoral programs also may be due to poor supervisory practices (Rudd, 1985; Cude,1987). In the discussion of the Ontario study, the author speculated that supervisory practices can be a contributing factor and recommended the adoption of an extensive checklist for supervisors (Yeates, 1991).

Summary

Overall, the literature documents a great variation in the completion rates and time to degree for doctoral students. Completion rates usually vary by discipline and are lower for women than for men. The rates range from 29% to 58% for women and from 40% to 71% for men and are in contrast to Cude's (1987) findings. The wide range in outcomes demonstrates the difficulty of employing a simplistic estimation model and suggests the need for cohort analysis. The cohort methodology provides information on the average length of time required by a student to complete a program. Such information is particularly useful because it can be used to address questions of resource allocations.

The prominent factors in the literature which were found to affect completion rates included financial support in general and teaching assistantships in particular, relationship with thesis advisor, being treated as a junior colleague, gender, number of dependents, support of significant other, and the degree of departmental alienation or isolation felt by the student. Factors often were different for women or affected women differently. The influencing factors range from the obvious one of financial support to the more subtle ones involving "institutional climate" issues such as equitable treatment.

Rationale for a Study at The University of Manitoba

While the literature review documented what is available and the variation among the results of the studies, it also revealed what is lacking. This omission was confirmed by the Smith Commission report which called for Canadian institutions to provide comparable data on completion rates of doctoral students and the median time to degree (Smith, 1991).

Universities expend great amounts of resources on doctoral programs but they have little information that would help them to inform granting agencies about any aspect of the process. The more that resources become constrained, the more universities will be called upon to justify their activities and the cost of these activities. It is in the best interest of graduate education to understand all aspects of the enterprise; otherwise governments, in the absence of any cogent explanations, may assume the worst.

Information on graduation rates and the length of time required to complete doctoral degrees may soon become more important for the purposes of public accountability. In the fall of 1994, a national magazine issued its fourth annual assessment of universities. Institutions were grouped according to primary mission, with professional/doctoral universities being one of the three categories. For the third year in a row, the survey collected data on the completion rates for undergraduate programs. Although the survey has been strongly criticized for methodological flaws, it nonetheless has served to focus a great deal of attention on universities. If the existence of doctoral programs is going to continue as one of the criteria, it may be only a very short time until the question of doctoral completion rates arises.

The University of Manitoba is the only institution within the province to offer doctoral programs. Within the university, the Dean of Graduate Studies and many other deans and department heads have called for information related to the completion rates and time to degree in doctoral programs in order to assist them in policy formulation and decision making. As university underfunding continues to be a major problem, particularly with respect to funding for graduate students, information from this study may assist the university in making its case to the provincial government.

Purpose of the Study

The objective of this study was to provide information which can enable informed decision making at the University of Manitoba. The study was designed so that it could be duplicated at other Canadian institutions and thereby provide data for comparison and use in planning at all levels in the institutions. Universities must establish an appropriate methodology and undertake such studies; otherwise, they may find themselves responding to data collected by journalists.

Clearly, from the review of the literature, doctoral programs are very much a unique enterprise, in terms of the institution that offers them, the nature of the particular discipline, and the students who enrol in them. Because of the small size of the cohort, no attempt was made to try to establish statistical correlations. This research project is therefore exploratory in nature, in that it attempts to assess and document those aspects that may be sensitive to variation, so that any future attempts to develop comparative data will have an overview of issues that may need to be addressed.

Research Questions

The research questions addressed by this study include the following:

(1) What are the completion rates and median time to degree of the cohort of doctoral students first admitted in 1984-85 to the Faculty of Graduate Studies at the University of Manitoba?

(2) Does the completion rate and median time to degree vary by gender and by field of study?

(3) What are the most important factors cited by students as affecting their progress and does this vary by gender and by field of study?

(4) What are the most important factors cited by students for withdrawing from, or seeking an extension to, their doctoral programs?

Definitions

The cohort of doctoral students is classified into three groups: those who graduated or "completed", those who dropped out, and those who were continuing. The definitions of completion rate, withdrawal or attrition rate, and continuing rate are outlined below.

The study employed the definition of completion rate as advocated by Bowen and Rudenstine (1992). "Minimum" completion rate" indicated the percentage who graduated by October 1993, i.e., within a nine year period, consisting of the normal seven year time limit plus a maximum two year extension. Whenever the term "completion rate" is used in the study, it refers to this concept. The term "truncated completion rate" also was used by them to refer

to the percentage of students who graduate after some other specified number of years after entry, for example, after four years (Bowen & Rudenstine, p 106).

The following hypothetical example will demonstrate these concepts:

(1) One hundred students entered a doctoral program in 1980.

(2) By 1984, 40 students have graduated, 20 have withdrawn, and 40 are still continuing.

(3) By 1989, 60 students have graduated, 30 have withdrawn, and 10 are still continuing.

(4) By 1990, 65 students have graduated, 34 have withdrawn, and one student is still continuing.

In the above example, in 1989, the "minimum" completion rate was 60%; in 1990 it was 65%. Because it is based on a specific year, the term minimum completion rate can be misleading. Therefore, any comparisons across studies must take into account whether or not the elapsed times are comparable. In the example, the truncated completion rate was 40% after four years, which could then be compared to the progress of more recent cohorts who had been in the program for four years. The truncated completion rate is not employed in this study because only one cohort is being studied; however, the concept is important in establishing a methodology for monitoring the progress of cohorts within an institution and making external comparisons.

The percentage of that same cohort which has withdrawn is referred to as the "attrition rate" or "withdrawal rate." The percentage of those who have not received a degree, but are still registered is referred to as the "continuing rate."

The "time to degree" is the year of graduation minus the year of first admission and refers to the median time to degree, unless otherwise stated. "Field of study" refers to the general subject areas as defined by Statistics Canada, e.g., Social Sciences. Although department and faculty codes were

maintained, departments were combined into these fields of study to overcome the small numbers in individual departments and to provide a common basis for comparison with other Canadian studies (Scheinin, 1989; Yeates, 1991).

For any given field of study, only departments which had doctoral students for the 1984-85 academic year are listed. "Agriculture and Biological Sciences" included botany, microbiology, zoology, animal science, entomology, plant science, soil science, and foods and nutritional sciences. "Engineering" included civil and geological, electrical and computer, mechanical and industrial, and agricultural engineering. "Humanities" included English, history, economics, political studies, French, and geography. "Mathematical and Physical Sciences" included chemistry, statistics, geological sciences, mathematics, physics, and computer sciences. "Medicine" included anatomy, biochemistry and molecular biology, immunology, pharmacology and therapeutics, physiology, medical microbiology, and human genetics. "Social Sciences" included psychology and sociology. "Education" contained only education since it is a faculty based program at the University of Manitoba. "Interdisciplinary" is also listed as a separate field, as it has no departmental affiliation.

"Factors" which were addressed on the questionnaire included the following: the professional relationship with the dissertation advisor, encouragement to publish, departmental advising and guidance, students' assessment of the fairness in the distribution of financial support within the department, encouragement to participate in local and national conferences and to present research, support of a significant other, family responsibilities, and sources of financial support. In considering fairness in the distribution of financial support, the pattern of allocation for that department is an important consideration. Some departments provide support almost routinely whereas, in others, support is more infrequent.

Although many of the reported studies have addressed these or similar factors, most of them have focused on only those doctoral students who complete or only those who drop out of programs. Therefore, it is not possible to gain a balanced picture, since one outcome is seen as positive and the other as negative. In this design, the satisfaction levels with any factor are based on the group as a whole.

Methodology

The data necessary to calculate the completion rates and time to degree for the 1984-85 cohort of doctoral students at the University of Manitoba were obtained and analyzed. By means of a survey, the factors which may influence completion rates and time to degree were examined and the question of whether there were differences by gender and by discipline also was investigated.

Subjects

The population studied were all students first admitted to the doctoral program at the University of Manitoba in the 1984-85 academic year (N=102). An extract of the Student Record Data Base was obtained for these students, with the following information: name, most recent address, gender, marital status, birth date, department, citizenship status, full or part-time status at initial registration, date of successful completion of candidacy examination, last session registered, full or part status at last registration, and graduation date. Their completion status was assessed as of the fall of 1993, which allowed students the normal seven years plus a maximum two year extension for completion of the doctoral degree. The 1984-85 cohort was chosen because it was the most recent cohort that could have completed its studies within that nine year period. Students were classified into three categories for comparison:

(1) Completions - those who had graduated by October of 1993.

(2) Withdrawals - those who had not graduated and had not re-registered in the fall of 1993.

(3) Continuing - those who had not graduated but had registered in the fall of 1993.

Instrumentation

Based on the literature reviewed, the identified research questions, and numerous discussions with colleagues involved with the different aspects of graduate studies, an initial questionnaire was developed and refined. As a final step, the questionnaire (Appendix) was then pre-tested on four graduates. Based on the feedback, one additional factor relating to the issue of power and control was added, and other editorial refinements were made.

The extract of variables from the Student Record data base was obtained, stored electronically, and analyzed to obtain completion rates and related information. The overall validity was strengthened because all of the demographic data were independently available. For example, respondents could not give inaccurate information about their academic status, how long they took to graduate, when they passed their candidacy examination or any of the other variables collected from the data base.

For those who withdrew, and for those who were still continuing in their program, a separate section of the questionnaire contained questions about their reasons for withdrawing, or for continuing, as applicable.

The questionnaire was in booklet form, with the front page containing a letter from the author, explaining the purpose of the study, assuring the confidentiality of their responses, and promising to send those who responded a summary of the results (Appendix).

Procedures

The questionnaire was mailed to all doctoral students who were first admitted in the 1984-85 session and for whom current addresses could be determined. The addresses of those who had graduated were checked with the

Alumni Office to see if they had been updated. With the assistance of the Faculty of Graduate Studies, it was sometimes possible to obtain an address from the student's advisor. A total of nine out of the 102 individuals in the cohort could either not be reached or their surveys were returned. Also, with many out-of-country addresses, no determination could be made about whether the surveys were ever received.

Each questionnaire had a number on it and those who did not respond were reminded by means of a postcard. Those who still did not respond were sent a follow-up letter and another copy of the survey. A postage paid return envelope was included with each survey.

In preparation for analyzing the results, a code book was established. The questionnaire was set up in such a way as to be pre-coded except for the open-ended questions. In cases where instructions were incorrectly followed, a specific procedure was developed to address the situation. For example, when a respondent had circled more than the one response requested, one answer was randomly chosen as the response.

The data for each respondent were added to the data already on file and the responses were analyzed using frequency distributions and chi square analysis, as appropriate. The program to analyze the data contained edit checks and procedures for any necessary data transformations due to, for example, missing data.

Assumptions and Limitations

The assumptions and limitations centre on the exploratory nature of this research and the small size of the cohort. The inability to obtain up-to-date addresses for all students is another limitation and is addressed in the results section.

As no previous institution-wide studies have been done at the University of Manitoba, no comparative demographic or survey data exist. Thus, although this study provides "hard" data on completion rate and time to degree, it also is an exploratory one in that it attempts to "chart the landscape" of the experiences of doctoral students as a reference point for further study. An assumption was made that the qualitative commentary provided by the students who responded was typical of experiences of doctoral students.

The ability to generalize about the representativeness of the results was limited because they were derived from only one cohort. In order to address this issue, the basic statistical data from the cohorts from the year prior, and the year subsequent, to the 1984-85 cohort were obtained and analyzed. These comparisons are presented in the results section.

Results

This section is divided into two parts. In the first, the statistics derived from the data available on the entire cohort are presented (N=102), with comparative data on completion rates, time to degree, and field of study for the two bracketing cohorts. In the second part, results of the responses to the survey are presented.

Statistics on the Entire Cohort

The 1984-85 cohort of doctoral admissions constituted 102 students. Because no data on the size or characteristics of any other cohort were available, the possibility existed that this one group would be anomalous in some significant way. In order to assess the representativeness of the target cohort, summary demographic data on the two bracketing cohorts were obtained. The data for the 1983-84 and the 1985-86 cohorts were combined and compared to the 1984-85 survey cohort, with respect to gender, field of study, completion rate, and time to degree, and these results are summarized.

Data from the survey cohort itself are analyzed. Completion rate and time to degree are disaggregated by gender and by field of study to determine whether differences are found among the sub-groups.

Gender and field of study of the survey and combined cohorts. As shown in Table 1, the survey population was 31.4% female and 68.6% male, as compared to 25.9% and 74.1% respectively in the combined cohort.

According to data published in the University of Manitoba's Institutional Statistics Book, the total enrolment of new plus returning students in doctoral

Table 1

Gender Distribution of Survey and Combined Cohorts

Cohort	Female		Male		Total	
	#	%	#	%	#	%
1984–1985 (Survey Cohort)	32	31.4	70	68.6	102	100
1983–84 + 1985–86 (Combined Cohort)	56	25.9	160	74.1	216	100
Survey Respondents	18	33.3	36	66.7	54	100

programs shows a constant 30% to 70% split between female and male enrolment for all three years (Office of Institutional Analysis, 1983-84 to 1985-86). The reason for the variation in the composition lies in the difference in the distribution of the field of study between the two cohorts, which also happens to be interrelated with gender.

The breakdown by field of study for the survey and combined cohorts is shown in Table 2. The proportion of students in the survey cohort is lower in the fields of study of mathematics and physical sciences and engineering, with 28.4% of students compared to 38.4% for those fields in the combined cohort. Almost no women are in that field in either of the cohorts. Because the combined cohort has a larger enrolment in mathematics and physical sciences and engineering, all of whom were men, the proportion of women is thereby decreased for this particular cohort. Therefore, the survey cohort reasonably represents the ongoing gender composition of the doctoral students at the

Table 2

Field of Study of Doctoral Cohorts

	Cohort Group			
	1984–85 (Survey)		1983–84 & 1985–1986 (Combined)	
Field of Study	#	%	#	%
Agriculture and Biological Sciences	18	17.7	31	14.4
Education	1	0.9	--	--
Humanities	22	21.6	24	11.1
Math and Physical Sciences and Engineering	29	28.4	83	38.4
Medical Sciences	18	17.2	31	14.4
Social Sciences	9	8.8	36	16.7
Interdisciplinary	5	4.9	11	5.1
TOTAL	102	100.0	216	100.0

Note: Percentages may not add to 100 due to rounding.

University of Manitoba. The relative percentage distributions of the fields of study, however, can vary from year to year, due to the small size of the cohort.

Completion rates of the survey and combined cohorts. The results of the comparisons of the completion rates of the target and combined cohorts are shown in Table 3. The graduation rate for the 1984-85 cohort was slightly higher at 73.5% than the combined cohorts from the previous and subsequent years

Table 3

Completion Rates of Doctoral Cohorts After Nine Years

	Cohort Groups					
	1984–85 (Survey)		1983–84 & 1985–1986 (Combined)		All Cohorts	
Status	#	%	#	%	#	%
Graduated	75	73.5	150	69.4	225	70.8
Withdrew	24	23.5	62	28.7	86	27.0
Continuing	3	3.0	4[a]	1.9[a]	7	2.2
TOTAL	102	100.0	216	100.0	318	100.0

Note: For comparative purposes the combined 1983-84 and 1985-86 cohort excludes six students who graduated from other than doctoral programs.

[a] Three of these students did graduate after ten years.

which averaged 69.4%. The overall average was 70.8%, with the graduating rate of the survey cohort being 2.7% higher, and the combined group being 1.4% lower, than the average. If the eventual graduation of an additional three students from the continuing group is taken into account, the final graduation rate matches the average of 70.8%. The survey cohort, therefore, is reasonably representative of the population with respect to completion rates.

Time to degree of the survey and combined cohorts. Table 4 details the time to degree or time in program for students who graduated, withdrew, or were continuing nine years after first admission, for both the survey and the combined cohorts. Both the median and mean (average) times are calculated

Table 4

Time to Degree for Doctoral Cohorts

	Cohort Groups					
	1984–85 (Survey)			1983–84 & 1985–1986 (Combined)		
Status	#	M	Median	#	M	Median
Graduated	75	5.2	5.1	150	5.5	5.1
Withdrew	24	4.3	4.7	62	2.7	1.7
Continuing[a]	3	9.7	9.7	4	10.1	10.2

[a] Represents time in program and is based on their projected graduation date.

because extreme values can influence the mean. It is especially true in this study because of the small cohort size.

The median time to degree is 5.1 years for both groups of graduating students, while the mean for the 1984-85 cohort is 5.2 as compared to 5.5 years for the combined cohorts. The variation in the amount of time students spent in the program before they withdrew is particularly noticeable between the survey cohort and the combined cohort. The survey group spent an average of 4.3 years in the program before withdrawing whereas the combined group spent an average of 2.7 years before doing so. The average length of time the withdrawing students in the survey group spent in the program is strongly affected by four out of the 24 students dropping out after 7.7 years in the program. At the other extreme, the withdrawing students in the combined cohort dropped out after an average of only 2.7 years, and half of those had done so by the 1.7 year mark.

For the continuing students, their time in program reflects their projected or actual graduation date and further emphasizes the effect such extreme values have on the final determination of the average time to degree for any cohort.

Summary of the results of the survey and combined cohorts. The comparisons confirm that the 1984-85 cohort surveyed is representative of doctoral cohorts at the University of Manitoba with respect to completion rates and time to degree. When considering gender and field of study, the survey cohort is reasonably representative, with a slightly higher proportion of females and a concomitant slightly lower proportion of students enroled in the Mathematics and Physical Sciences and Engineering fields of study.

Having established the survey cohort as being representative of doctoral cohorts, the results of the cohort itself are examined for differences in completion rate and time to degree. For each of these variables, comparisons are made between females and males, and among the fields of study.

Completion rate of cohort by gender and field of study. The comparisons of completion rates by gender are shown in Table 5. The percentages of males

Table 5

Completion Rates of 1984-85 Doctoral Cohort by Gender

	Females		Males	
	#	%	#	%
Graduated	23	71.9	52	74.3
Withdrew	7	21.9	17	24.3
Continuing	2	6.3	1	1.4
TOTAL	32	100.0	70	100.0

and females who graduated, withdrew, or were still continuing after nine years are very similar. The graduation rate for women was 71.9% compared to 74.3% for men. The withdrawal rate for women was 21.9% as compared to 24.3% for the men. Two women and one man were still continuing, after nine years.

The comparisons of completion rates of the 1984-85 cohort by field of study are shown in Table 6. The differences between the graduation and withdrawal rates among the fields of study should not be taken as conclusive, as the cell sizes are small. The graduation rates were highest in Engineering and Medical Sciences, at 84.6% and 83.3% respectively. The Humanities and the Mathematics and

Table 6

Completion Rates of 1984-1985 Doctoral Cohort By Field of Study

	Status							
	Graduated		Withdrew		Continuing		Total	
Field of Study	#	%	#	%	#	%	#	%
Agriculture & Biological Sciences	11	61.1	7	38.9	--	--	18	100
Education	--	--	1	100.0	--	--	1	100
Engineering	11	84.6	2	15.4	--	--	13	100
Humanities	17	77.3	3	13.6	2	9.1	22	100
Math & Physical Sciences	12	75.0	4	25.0	--	--	16	100
Medical Sciences	15	83.3	3	16.7	--	--	18	100
Social Sciences	6	66.7	2	22.2	1	11.1	9	100
Interdisciplinary	3	60.0	2	40.0	--	--	5	100
TOTAL	75	73.5	24	23.5	3	21.9	102	100

Physical Sciences fields of study were next at 77.3% and 75% respectively. The completion rates for the remaining fields of study fell below the overall average of 73.5%. If all the continuing students were to graduate, the maximum rate for the Humanities could increase to about 86% and the rate for the Social Sciences to 78%, considerably higher than reported elsewhere in the literature.

The highest withdrawal rate of 38.9% was in the Agricultural and Biological Sciences field, whereas the lowest rate was 13.6% in the Humanities. Again, this was in direct opposition to many of the results reported elsewhere. Engineering had the next lowest rate of withdrawal at 15.4%, followed by the Medical Sciences at 16.7%.

Time to degree of cohort by gender and field of study. The time to degree of the 1984-85 cohort by gender, and by field of study, are shown in Tables 7 and 8, respectively. For those students who graduated, the average number of years in

Table 7

Time to Degree of 1984-85 Doctoral Cohort by Gender

Status	#	Min.	Max.	Mean	Median	S.D.
Graduated						
Females	23	2.1	8.4	5.2	4.8	1.9
Males	52	2.1	9.1	5.2	5.1	1.8
Withdrew						
Females	7	.1	7.7	3.7	4.7	3.2
Males	17	.3	7.7	4.5	4.7	2.3

Note: A total of three students were "continuing," but a breakdown is not provided to protect confidentiality.

Table 8

Time to Degree of 1984-85 Doctoral Cohort by Field of Study

Graduated Students Only

Field of study	#	Min. (in yrs.)	Max. (in yrs.)	Mean	Median	S.D.
Agriculture & Biological Sciences	11	3.1	8.8	4.5	4.1	1.6
Engineering	11	2.4	7.7	4.6	4.7	1.8
Humanities	17	5.1	9.1	6.8	6.7	1.2
Math & Physical Sciences	12	2.3	6.8	4.5	4.4	1.3
Medical Sciences	15	2.1	7.4	3.9	3.7	1.4
Social Sciences	6	4.1	8.1	6.6	6.5	1.5
Interdisciplinary[a]	3	--	--	--	--	--

[a] Breakdown not provided to preserve confidentiality

the program was 5.2 years for both women and men, while the median was 4.8 years for women as compared to 5.1 for men. The shortest time for degree completion was the same for both women and men at 2.1 years, while the maximum was 8.7 for women and 9.1 for men. For those students who withdrew, the average time spent in the program before withdrawing was higher for men at 4.5 years than for women at 3.7 years. The median number of years was the same for both men and women at 4.7 years, but an examination of the distribution of the data points reveals that the average for men was increased because more men than women were concentrated at the higher end of the distribution of the number of years to degree.

The breakdown of the time to degree by field of study for graduating students, as shown in Table 7, reveals a wider variation in the time required to complete a doctoral program. The shortest median time to degree was 3.7 years in the Medical Sciences; the longest median time was 6.7 years in the Humanities and 6.5 years in the Social Sciences, with the remaining fields of study ranging between 4.1 and 4.7 years. All fields showed maximum values which were considerably higher than the medians, once again emphasizing the individual nature of the doctoral pursuit and cautioning against generalizations on the basis of field of study.

Summary of completion rates and time to degree of cohort. The analyses of the entire 1984-85 cohort of 102 students revealed no marked difference in the completion rates and time to degree for men and women. Differences were noted among the fields of study with respect to the completion rates and time to degree, although these must be interpreted cautiously because of the small numbers of students involved.

Survey Results

The results from the questionnaire survey are outlined in this section, by detailing the response rate and addressing the research questions regarding factors affecting the progress of the respondents as a whole. The responses and comments of those students who withdrew or are still continuing also are presented.

Response rate. The total population of those admitted to the doctoral program at the University of Manitoba in 1984-85 was 102 students. Because of the elapsed time, current addresses could not be obtained for 10 students.

Questionnaires were mailed to 92 students, 65 to Canadian addresses and 27 to out-of-country addresses. The response rate for the 54 returned of the 92 surveys mailed was 58.7%.

The in-country response was 47 of 65, for a 72.3% response rate; the out-of-country rate was seven of 27 or a 25.9% response rate. Although the out-of-country response rate is less than ideal, considering that surveys were sent to 10 different foreign countries (not including the United States), that some of the addresses were the permanent home addresses students listed at the time of admission more than ten years ago, and that no way existed of determining whether or not the individuals even received them, this response rate is not unexpected.

Not being able to contact some students also was reflected in the comparative responses from those who graduated, withdrew or were still continuing. Referring back to Table 3, the percentage of the 1984-85 cohort who graduated was 73.5%, with 23.5% withdrawing, and 3.0% continuing. In comparison, about 85.2% of the actual respondents to the survey were students who had graduated. Those who had withdrawn made up 11.1% of the responses, with the remaining 3.7% of the total coming from students still continuing in the program. Therefore, students who withdrew are under represented in the responses, but mainly because they were more often the students for whom there were no current addresses. The comparatively limited number of responses from students who had withdrawn or were continuing did not permit a statistical analysis of any differences in responses; however, the findings from the specific questions addressed to them do provide a basis for comparing their experiences.

The survey population was 31.4% female and 68.6% male, while the respondent group was 33.3% female and 66.7% male. The results therefore can be said to be representative with respect to gender.

As shown in Table 9, the fields of study of the respondents were mostly representative of the cohort, taking into consideration the small size of the group and even smaller size of the components. The respondents in the Humanities were slightly over- represented at 25.9% compared to 21.6% of the cohort. The Medical Sciences were slightly under-represented in the respondents at 13.0% compared to being 17.7% of the initial cohort.

Table 9

Comparison of 1984-85 Cohort Population with Respondents by Field of Study

Field of Study	1984 - 85 Cohort N = 102		Respondents N = 54	
	#	%	#	%
Agriculture and Biological Sciences	18	17.7	11	20.4
Education	1	0.9	--	--
Engineering	13	12.8	7	13.0
Humanities	22	21.6	14	25.9
Math and Physical Sciences	16	15.7	8	14.8
Medical Sciences	18	17.7	7	13.0
Social Sciences	9	8.8	4	7.4
Interdisciplinary	5	4.9	3	5.6
TOTAL	102	100.0	54	100.0

Note: Percentages may not add to 100 due to rounding.

As shown, the respondents to the survey were representative of the population with respect to gender and field of study. Of those students in the cohort who had addresses in Canada, 72.3% responded, making the respondents clearly representative of that population. Even when taking into account the out-of-country individuals who may or may not have received the questionnaire, the overall response rate was still 58.7%, and therefore conclusions can be drawn about the cohort as a whole when assessing what factors affected students pursuing doctoral degrees at the University of Manitoba.

Progress in program. To measure the impact that advisors have on the doctoral process, students were asked to indicate whether they agreed or disagreed with a series of statements about their advisors. Students could have had more than one advisor so, to ensure comparability of responses, respondents were asked to evaluate the impact of their final advisors. They also could indicate any statements which they felt were not applicable, in order to take into account two possible situations. First, respondents may not have had a basis for evaluation; for example, if a program had no female students, the male students would have had no basis for judging whether both genders were treated equitably. Second, the "not applicable" was useful for indicating areas where students had no expectations. Table 10 contains the percentage distributions of the responses.

The highest level of agreement, between 85.2% and 79.6% was for statements that their advisors were generally available to them, gave them constructive criticism on their work, and returned critiques of their work in a timely fashion. Alternately, 74.1% of respondents disagreed with the statement that their advisors often did not have time to meet and discuss their work. The

Table 10

Agreement/Disagreement with Statements about Advisors - All Students

	Percentages		
	Agree	Disagree	N/A
Positive Statements			
Advisor was generally available	85.2	13.0	1.8
Gave constructive criticism on my work	83.3	14.8	1.9
Returned critiques in timely fashion	79.6	13.0	7.4
Did a good job of co-ordinating my committee	74.1	18.5	7.4
Encouraged me to publish work while in program	64.8	25.9	9.3
Encouraged me to present work at conferences	64.8	24.1	11.1
Knowledgeable re: Graduate Studies regulations	64.8	24.1	11.1
Treated female and male students equitably	61.1	11.1	27.8
Treated me as a junior colleague	57.4	27.8	14.8
Tried to provide financial support for me	57.4	25.9	16.7
Required me to provide regular progress reports	53.7	35.2	11.1
Included me in department social activities	51.9	27.8	20.4
Kept me informed of departmental "politics"	42.6	35.2	22.2
Gave me useful advice on how to survive in graduate school	42.6	29.6	27.8
Assisted me in finding employment	35.2	35.2	29.6
Negative Statements			
Often had no time to meet with me to discuss my work	20.3	74.1	5.6
Was not flexible if I had a personal problem	9.3	68.5	22.2

negative statement serves as a check to confirm the level of agreement of the earlier statement about the general availability of the advisor.

Most surprising was that only 53.7% of students agreed that their advisor required them to provide regular progress reports. The lowest level of agreement of 35.2% was for the statement that their advisors assisted them in finding employment. A further 35.2% disagreed, and 29.6% marked it as not applicable. The level of agreement, both at 42.6%, also was weak with regard to the statements that advisors gave useful advice on how to survive in graduate school, and kept them informed of departmental politics.

When the responses are examined separately for men and women, as shown in Table 11, differences are noted in several areas. In evaluating the statement on the questionnaire that advisors were generally available to them, only the men disagreed. Similarly, in evaluating the negative statement that advisors often did not have time to meet with them to discuss their work, only men agreed. Men were generally more likely to be critical of their advisors, with nearly 19.4% of men compared to only 5.6% of women disagreeing with the statement that their advisor gave them constructive criticism of their work. Men also were less likely to agree that their advisor treated male and female students equitably, but 34.3% marked the statement as not being applicable, because in several of the fields of study the men who responded did not have any female colleagues. If the results are re-normalized to exclude the "not applicable" category, men are more likely to disagree with that statement.

Respondents were asked to rate how encouraging various people were while they were pursuing their doctoral programs. The ratings were on a scale of one to five, in which 1 equalled very encouraging and 5 equalled very discouraging. Students were asked to indicate any items which were not

Table 11

Agreement/Disagreement with Statements about Advisors - By Gender

	Percentages					
	Agree		Disagree		N/A	
	F	M	F	M	F	M
Positive Statements						
Advisor was generally available	100.0	80.6	--	19.4	--	--
Gave constructive criticism on my work	94.4	77.8	5.6	19.4	--	2.8
Returned critiques in timely fashion	100.0	71.4	--	20.0	--	8.6
Did a good job of co-ordinating committee	94.1	66.7	5.9	25.0	--	8.3
Encouraged me to publish while in program	66.7	63.9	27.8	25.0	5.6	11.1
Encouraged me to present at conferences	70.6	63.9	23.5	25.0	5.9	11.1
Knowledgeable re: Graduate Studies regulations	50.0	74.3	38.9	17.1	11.1	8.6
Treated female and male students equitably	82.4	54.3	11.8	11.4	5.9	34.3
Treated me as a junior colleague	76.5	51.4	23.5	31.4	--	17.1
Tried to provide financial support for me	64.7	55.6	23.5	27.8	11.8	16.7
Required regular progress reports	58.8	54.3	35.3	37.1	5.9	8.6
Included me in departmental social activities	47.1	55.6	23.5	30.6	29.4	13.9
Kept me informed of departmental "politics"	55.6	36.1	27.8	38.9	16.7	25.0
Gave useful advice on how to survive in graduate school	56.3	38.9	25.0	33.3	18.8	27.8
Assisted me in finding employment	38.9	33.3	33.3	36.1	27.8	30.6
Negative Statements						
Often had no time to meet to discuss my work	100.0	31.4	--	65.7	--	2.9
Was not flexible if I had a personal problem	5.9	11.4	88.2	62.9	5.9	25.7

applicable. The results included both frequency distributions to describe the most important sources of encouragement for the whole group, as well as calculation of mean scores to see if differences existed between female and male patterns of response. The results are shown in Table 12.

Doctoral students got the most emotional support from their partners or spouses and their advisors, with 82% and 80% of respondents respectively indicating them to be "encouraging" or "very encouraging." Two other groups also proved to be very supportive. Slightly less than three quarters of the respondents indicated other professors and 69% indicated other graduate students as being encouraging or very encouraging.

Table 12

Level of Encouragement Received for Pursuing Doctoral Program

	Percentage Distribution of Responses			Mean Score		
	Encouraging or Very Encouraging	Neutral	Discouraging or Very Discouraging	1 = Encouraging 5 = Very Discouraging		
	Total	Total	Total	F	M	Total
Spouse/Partner	82.1	10.3	7.7	1.7	1.5	1.6
Children	63.2	36.8	--	2.1	2.0	2.1
Parents	70.2	21.3	8.5	2.2	2.1	2.1
Advisor	79.6	16.7	3.7	1.4	1.8	1.7
Other Prof(s)	73.6	22.6	3.8	2.1	2.1	2.1
Other Grad. Student(s)	74.0	24.0	2.0	1.9	2.1	2.0
Employer	63.2	31.6	5.3	2.0	2.2	2.1
Friend (other than Grad. Students)	64.4	31.1	4.4	2.1	2.3	2.3

Surprisingly, 10% of those who had partners rated their encouragement as "neutral," and 8% rated it as "discouraging." Parental support was rated as "neutral" by 21% of the group, with about 9% indicating that their parents were "discouraging" or "very discouraging."

The pattern of responses for women and men varied; women rated the support of their advisor more highly, $\underline{M} = 1.4$, than men did, $\underline{M} = 1.8$. Note that the lower the number the higher the rating. On the other hand, women rated the support of their spouse or partner less highly, $\underline{M} = 1.7$, than men, $\underline{M} = 1.5$, respectively. Chi square analysis did not reveal any significant differences in response by gender.

The small cell sizes for field of study make it difficult to draw conclusions about any observed differences. Social Science respondents more often rated the encouragement they received from partners, other professors, and employers at the neutral level than did those in other fields.

Respondents were asked to indicate the main sources of financial support for their doctoral program by indicating all that were applicable. The frequency distribution of the percentages of students who chose each source of funding is shown in Table 13, for all respondents, and also for women and men separately. The responses are further rank ordered according to the female distribution to highlight the contrast in responses by gender, as the overall results mask the substantive differences in women's and men's responses.

The most frequent sources of financial support cited by all respondents were: student teaching assistantships at 46.3%; spouse or partner and scholarships, both at 37.0%; and outside employment at 35.2%. The overall percentages mask the very disparate responses of women and men as to their most frequent source of financial support. Although teaching assistantships

Table 13

Main Sources of Financial Support of Doctoral Students by Gender

	Frequency Distributions					
	Females		Males		Both	
Source of Support	%	Rank	%	Rank	%	Rank
Spouse/Partner *	61.1	1	25.0	6	37.0	2
Scholarship	44.4	2	33.3	3	37.0	2
Fellowship	38.9	3	22.2	7	27.8	4
Teaching Assistantship	33.3	4	52.8	1	46.3	1
Outside Employment	22.2	5	41.7	2	35.2	3
Professor's research funding	22.2	5	30.6	4	27.8	4
Personal Savings	11.1	6	27.8	5	22.0	5
Student Loan	5.6	7	5.6	8	5.6	6
Parents/Relatives	5.6	7	2.8	9	3.7	7

Note: N = 54, with 18 females and 36 males. Respondents were asked to check all that applied.

* $p < .05$

were the most frequently indicated source of funding at 46.3%, they were indicated by only 33.3% of the women as compared to 52.8% of the men. The reverse pattern occurred in the rating of a spouse or partner as a source of monetary support, in which 61.1% of the women in contrast to only 25.0% of the men specified this source. Thus, teaching assistantships were rank ordered as first for men, but fourth for women, while spouse or partner was rank ordered

first for women but only sixth for men. Chi square analysis revealed that the gender difference with respect to the frequency of citing partners as a source of financial support was significant at X^2 (1, N = 54) = 6.59, p = .010.

An even more marked contrast was apparent when it came to designating which were the most important sources of funding for men and women. Table 14 reflects the frequency with which the various sources were indicated as being the first, second, or third most important source. The responses are shown for females, males, and for the group as a whole.

Men had several important sources of funding whereas women had only one, their partners. Spouses or partners were the most important source for both, tallied at 77.8% of the women compared to only 30.3% of the men. Next on the list of the most important sources for men were scholarships at 21.2%, followed by teaching assistantships at 12.1%. Three sources were rated by men at 9.1% each, namely, professor's research funding, fellowship, and employment outside the university. Only one other source was of comparable importance for women, that of scholarships at 11.1%.

With regard to the second and third most important sources of funding, the gender difference disappeared. Both women and men indicated personal savings as second most important, at 46.7% and 39.3% respectively, and both rated parents as the third most important source at 30% and 31.8%, respectively.

In all cases, the sources of funding that men utilized were much more diversified than women, and encompassed both public and private sources of funds. Women tended to utilize personal resources almost exclusively.

Data on the source of funding also were tabulated separately for students who graduated or withdrew, in order to determine if their patterns of responses were unique. Cell size did not make significance testing feasible, but the overall

Table 14

Frequency Distribution of the Three Most Important Sources of Financial Support by Gender

	Females		Males		Total	
	%	Rank Order	%	Rank Order	%	Rank Order
Most Important Source						
Spouse/Partner	77.8	1	30.3	1	47.1	1
Scholarship	11.1	2	21.2	2	17.6	2
Fellowship	5.6	3	9.1	4	7.8	3
Teaching Assistantship	--	--	12.1	3	7.8	3
Outside Employment	--	--	9.1	4	5.9	4
Professor's research funding	--	--	9.1	4	5.9	4
Other	5.6	4	6.1	5	5.9	4
Personal Savings	--	--	3.0	6	2.0	5
TOTAL	100.0		100.0		100.0	
	n = 18		n = 33		n = 51	
Second Most Important Reason						
Personal Savings	46.7	1	39.3	1	41.9	1
Outside Employment	--	--	14.3	2	9.3	2
Teaching Assistantship	13.3	2	7.1	4	9.3	2
Professor's research funding	--	--	14.3	2	9.3	2

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Table 14 (continued)

	Females		Males		Total	
	%	Rank Order	%	Rank Order	%	Rank Order
Second Most Important Reason (continued)						
Spouse	--	--	10.7	3	7.0	3
Scholarship	13.3	2	3.6	5	7.0	3
Fellowship	13.3	2	3.6	5	7.0	3
Other	6.7	3	3.6	5	4.7	4
Student Loan	6.7	3	--	--	--	--
Parents/other relatives	--	--	3.6	5	--	--
TOTAL	100.0		100.0		100.0	
	n = 15		n = 28		n = 43	
Third Most Important Reason						
Parents (other relatives)	30	1	31.8	1	31.3	1
Teaching Assistantships	30	1	27.3	2	28.1	2
Personal Savings	--	--	13.6	3	9.4	3
Professor's research funding	20	2	4.5	4	9.4	3
Scholarship	10	3	4.5	4	6.3	4
Outside Employment	10	3	4.5	4	6.3	4
Spouse/Partner	--	--	4.5	4	3.1	5
Student Loan	--	--	4.5	4	3.1	5
Other awards	--	--	4.5	4	3.1	5
TOTAL	100.0		100.0		100.0	
	n = 10		n = 22		n = 32	

distributions did indicate a different focus for financial resources. Students who withdrew relied on a wide range of sources, but had a heavier emphasis on employment outside the university, and other public sources of funds. They indicated almost no reliance on spouses or partners, which is in marked contrast to those who graduated. This finding must be interpreted cautiously because the number of respondents who withdrew was small. From questions which focused on specific factors such as financial support, the following results provide the larger context in the progress of the doctoral cohort.

Respondents were asked to assess to what extent a list of factors affected their progress in the doctoral program. They rated each item as having a major (1), moderate (2), or minor (3) effect, or as not applicable. The "not applicable" category was employed in many of the questions to help identify topics with which respondents were unfamiliar or about which they were ambivalent. The percentages of "not applicable" responses of men and women were compared to see if any major differences existed. None were found, and therefore this category was excluded and a mean, median and standard deviation were calculated for each response, to show the average effect of any one item and to determine from the midpoint whether any of the responses was leaning towards having a major or a minor effect. Table 15 reflects the results of these calculations. Differences with respect to gender also were investigated; however, analysis based on field of study was not possible because of the small cell sizes. As with the responses on financial support, the averages for the group blur the relative importance men and women place on the situations which affected them during their programs.

Table 15

Factors Affecting Progress in the Doctoral Program by Gender and Total

	Females			Males			Total		
Factors	N	M	S.D.	N	M	S.D.	N	M	S.D.
Problems with visa status	--	--	--	3	1.7	1.16	3	1.7	1.16
Lack of understanding/ support for qualitative research	7	2.0	.82	14	2.0	.88	21	2.0	.84
Financial problems	8	2.0	.76	19	2.1	.78	27	2.0	.76
Lack of personal support network	6	1.5	.55	13	2.3	.63	19	2.1	.71
Conflicts with job	3	1.7	.58	12	2.3	.87	15	2.1	.83
Marital problems	8	1.8	.89	10	2.6	.52	18	2.2	.81
Childbirth/adoption	5	1.6	.89	8	2.6	.52	13	2.2	.83
Sexual harassment	--	--	--	--	--	--	4	2.3	.96
Conflict with member(s) of the department	9	2.6	.73	12	2.3	.87	21	2.4	.81
Lack of skills in written English	2	2.5	.71	8	2.4	.74	10	2.4	.70
Moving/relocating	5	2.0	.71	12	2.5	.67	17	2.4	.70
Lack of support network of other grad. students	7	2.6	.54	13	2.3	.63	20	2.4	.60
Discrimination	3	2.3	1.16	8	2.5	.76	11	2.5	.82
Difficulty finding satisfactory childcare*	8	2.4	.92	6	2.8	.41	14	2.6	.76
Personal health problems	5	3.0	--	8	2.4	.92	13	2.6	.77
Health problems in the family	5	2.2	.84	7	2.9	.38	12	2.6	.67
Lack of skills in spoken English	2	3.0	--	7	2.4	.54	9	2.6	.53
Loss of interest in studies	2	2.5	.71	9	2.8	.67	11	2.7	.65
Conflict with spouse's/ partner's job plans	7	2.7	.49	6	2.8	.41	13	2.8	.44
Conflict with spouse's/ partner's study plans	3	2.3	.58	5	3.0	.46	8	2.8	.46

Note: Respondents were asked to rate each factor where 1 = major, 2 = moderate, 3 = minor, or not applicable. The latter category was excluded from the calculations.

* $p = < .05$

Factors that students rated, on average, as having had the most effect on their progress in the doctoral program included: lack of understanding/support for the qualitative research being undertaken; financial problems; lack of a personal support network; conflict with job; marital problems; and childbirth/ adoption. These six factors, in the order stated, were rated as having had a major to a moderate impact.

Men and women evaluated their situations differently. For all the factors noted above, women consistently rated the extent of their effect higher than did men. The only exception was the first item regarding a lack of support for qualitative research, in which men's and women's ratings were identical. The most important concerns for women were lack of a personal support network, childbirth or adoption, conflicts with jobs, and marital problems, and all of these had a greater than moderate impact. The pattern of responses between men and women was significantly different on one factor, that of "difficulty in finding satisfactory child care", where $\underline{X}^2(1, \underline{N} = 53) = 4.91, \underline{p} = .027)$.

One factor affected men exclusively, that of having a problem with their visa status. Three men reported this problem and, although the number is small, the impact on visa students could be much greater on the group as a whole, since out-of-country students are somewhat under-represented in the respondents.

In addition, students were asked to indicate and rate any other factors which they felt had affected their progress. Ten students responded and their comments will be reviewed in the discussion and analysis section.

Respondents were asked to indicate their level of agreement with various statements about the departmental climate and their advisory committees. The scale range was from one to five, where one equalled strongly agree and five equalled strongly disagree. Individuals could also mark the statement as "not

applicable", which would indicate areas where students had no expectations or no basis on which to make an assessment. In order to probe the range of reactions, some statements were worded positively and some negatively. The entries in Table 16 are grouped to reflect this dichotomy.

The statement "my contributions in class were valued" was the most strongly supported, with 87% agreeing or strongly agreeing. Only half of the respondents felt the same way about whether "financial support for graduate students was fairly distributed in my department;" while 24.1% disagreed or strongly disagreed, 13% were undecided, and the remaining 13% indicated it was not applicable.

Slightly more than one in four women agreed or strongly agreed with the statement "female and male students were treated equitably in my department" as compared to three out of four men. Women were three times more likely to disagree or strongly disagree. Chi square analysis indicated a significant difference in the responses to that statement by men and women, with $\underline{X}^2(1, \underline{N} = 53) = 9.41, \underline{p} = .002$. Women were less likely than men to agree that financial support was fairly distributed, at 38.9% and 55.6% respectively. Almost a quarter of them were undecided, 22.2% as compared to only 8.3% of the men.

Because this question is directly related to the department, the results also were evaluated on the basis of field of study to see if significant differences existed in the pattern of responses on individual items. The broader category of field of study was used in order to obtain sufficient cell sizes and also to protect confidentiality. Two items tested as having significantly different patterns of responses between fields of study. The first was the statement that financial support was fairly distributed, $\underline{X}^2(6, \underline{N} = 54) = 15.37, \underline{p} = .018$. The second that tested as significant was the statement on feeling socially isolated from the rest of the students in the department where $\underline{X}^2(6, \underline{N} = 53) = 12.69, \underline{p} = .048$.

Table 16

Assessment of Statements about the Department

Statements	Percentages[a]		
	Female	Male	Total
Positive Statements			
My contributions in class were valued			
Agree or strongly agree	100	80.6	87.0
Undecided	--	11.1	7.4
Disagree or strongly disagree	--	2.8	1.9
Not applicable	--	5.6	3.7
Treated as colleague by one or more professors			
Agree or strongly agree	77.8	77.8	77.8
Undecided	5.6	13.9	11.1
Disagree or strongly disagree	16.7	5.6	9.3
Not applicable	--	2.8	1.9
Advisory committee supportive			
Agree or strongly agree	77.8	71.4	73.6
Undecided	11.1	11.4	11.3
Disagree or strongly disagree	11.1	17.1	15.1
Not applicable	--	--	--
Professor called on men and women equally in group sessions			
Agree or strongly agree	77.8	70.6	73.1
Undecided	22.2	8.8	13.5
Disagree or strongly disagree	--	8.8	5.7
Not applicable	--	11.8	7.7
Department supportive of graduate students			
Agree or strongly agree	66.7	63.9	64.8
Undecided	22.2	11.1	14.8
Disagree or strongly disagree	11.1	25.0	20.4
Not applicable	--	--	--

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Table 16 (continued)

Statements	Percentages[a] Female	Male	Total
Positive Statements(continued)			
Female and male students treated equitably*			
Agree or strongly agree	27.8	74.3	58.5
Undecided	22.2	8.6	13.2
Disagree or strongly disagree	38.9	11.4	20.7
Not applicable	11.1	5.7	7.5
Financial support fairly distributed			
Agree or strongly agree	38.9	55.6	50.0
Undecided	22.2	8.3	13.0
Disagree or strongly disagree	11.1	30.6	24.1
Not applicable	27.8	5.6	13.0
Negative Statements			
Was required to make major changes to thesis in the final stages			
Agree or strongly agree	16.7	11.1	13.0
Undecided	--	--	--
Disagree or strongly disagree	66.7	75.0	72.2
Not applicable	16.7	13.9	14.8
Felt socially isolated from other students			
Agree or strongly agree	11.1	17.1	15.1
Undecided	11.1	5.7	7.5
Disagree or strongly disagree	55.6	65.7	62.2
Not applicable	22.2	11.4	15.1
Received less attention from professors than other students			
Agree or strongly agree	5.6	20.0	15.1
Undecided	27.8	14.3	18.9
Disagree or strongly disagree	50.0	57.1	54.7
Not applicable	16.7	8.6	11.3

Note: N = 54 * p = .002

[a] Percentages may not add to 100 due to rounding.

Depending on field of study and gender, students viewed certain aspects of their departments differently. Some students found it necessary to change advisors and the next section details the experiences of this particular subset of students.

When asked if they had ever changed advisors, 10 of the 54 respondents said that they had. Those who had were then asked to select from a list as many of the factors as applied to their decision, and/or they could write in their own. An examination of the actual questionnaires revealed that all students except one chose only one response, making distribution of the responses discrete, except as noted. Three respondents indicated that their original advisor had left the university and two said that their original advisor was interim only. Another said a change in area of interest necessitated a change in advisor. Aside from the logistical reasons, one student deliberately changed the area of interest in order to change advisors, another two students indicated that their advisors tried to control their work, and in one case the original advisor asked the student to find another supervisor.

The 10 respondents who had changed advisors were evenly divided between women and men making the percentage of the total female respondents who withdrew 5 out of 18 or 27.8% as compared to 5 out of 36 or 13.9% of the total male respondents.

For the three male students who wrote in their own reasons, one student who had also indicated that the advisor had tried to control the work, stated that "my advisor's research interests changed." Another volunteered "personality problems" while a third offered the reason as "my original advisor expressed his inability to supervise my work."

Of the ten students who changed advisors, eight had graduated, one had dropped out and one was still enroled. Nothing distinguished the responses chosen by the respective groups from the eventual outcomes of their program.

Factors cited by students who withdrew or were still continuing. Of the six respondents to the survey who had withdrawn, the reasons for withdrawal varied. Two students withdrew because of trying to study and work full-time, one of whom also indicated "personal problems." Two students had major problems with their committees, one because family obligations interfered with her progress. According to the respondents, they received very little support or advice on what needed to be done to resolve the problem. The other student indicated that her committee "decided to fail me as 'they thought I would never finish' after only two and a half years" and "I chose a voluntary withdrawal." Another student had ethical concerns about his research, while one student found the lack of orientation on how to go about doing a thesis and no regular meetings with the advisor as the major reason for withdrawal.

Two of the three students who were continuing responded to the survey; both were awaiting their thesis defense. The reasons they cited for seeking an extension were related to family responsibilities (exclusive of childbirth), personal illness, conflict with job, and conflict with advisor.

Discussion and Analysis

The findings from this study of the 1984-85 cohort of doctoral students at the University of Manitoba show overall higher completion rates, with less disparity between the rates for men and women, and between fields of study, than reported elsewhere in the literature on cohort studies (Bowen & Rudenstine, 1992; Yeates, 1991; Zwick, 1991; Scheinin, 1989; Gunn & Sanford, 1988). The overall median time to degree is similar to that reported in Yeates (1991), but with striking differences by gender and field of study. The responses from the survey conducted on this group reveal interesting patterns in the situations which students encounter while in the program, and provide insights into the dynamics which affect completion rates and time to degree at the University of Manitoba.

Completion Rate

After nine years at the University of Manitoba, 73.5% of the 1984-85 cohort had graduated, and 3% were still continuing, for a maximum possible graduation rate of about 77% after ten years. The outcome is more favourable in comparison to other Canadian studies which calculated rates between 59 and 57% (Yeates, 1991; Scheinin, 1989). Some of the variation can be explained partially by the differing methodologies, the size and number of the cohorts and the difference in elapsed time. The results from this study are nonetheless important in emphasizing both the variation that is possible from one region to another, and from one institution to another, and the need for national data as called for in the Smith Commission report (Smith, 1991).

The graduation rates for women and men at the University of Manitoba were remarkably close at 71.9% and 74.3% respectively, closer than any of the other Canadian studies cited or any of the American studies (Bowen & Rudenstine, 1992, Zwick, 1991; Gunn & Sanford, 1988).

The completion rates by field of study at the University of Manitoba ranged from a high of 84.6% in Engineering to a low of 61.1% in the Agricultural and Biological Sciences. Other studies typically find the Humanities and Social Sciences to be the lowest, somewhere in the 40% range (Yeates, 1991; Scheinin, 1989). The rates in this study for the Humanities and Social Sciences were 77.3 and 66.7% respectively, and compared favourably to the Mathematics and Physical Sciences at 75%.

The Interdisciplinary students were actually the lowest at 60% but the result is based on three out of five students, too small a group to be cited as a percentage figure alone. One of the respondents who had graduated from an interdisciplinary program commented that not having a "home" department was a major problem and suggested the need for a careful evaluation of the organization of the interdisciplinary program at the University of Manitoba.

While the cell sizes in this study are small, the distribution of fields of study and the overall graduation rates of the cohort have been found to be representative of University of Manitoba doctoral cohorts in general, and therefore a larger number of cohorts would not likely lead to substantially different results. Part of the explanation for this difference at Manitoba may lie in the particular mix of disciplines that predominate in the composition of the "field of study" in this cohort. For example, the departments that constituted the Humanities field of study in this cohort included English, history , economics, political studies, French, and geography. Other larger studies likely would have

included other departments, such as philosophy, and may have had different concentrations of students from the various areas. As well, the same department at two different institutions may have very different sets of expectations for their doctoral students.

The completion rates at the University of Manitoba emphasize the uniqueness of doctoral programs to institutions. The amount of time students spent in their programs, with respect to gender and field of study, also stands in contrast to other trends.

Time to Degree

Two of the more recent studies have convincingly argued the advantage of calculating median time to degree, because averages can be influenced by extreme cases (Bowen & Rudenstine, 1992; Yeates, 1991). The smaller the cohort, the more even one or two extreme values can affect the result. This is pointedly illustrated in the University of Manitoba's data as shown in Table 3. The medians for both cohorts are 5.1 years, whereas the average is 5.2 for the target group and 5.5 for the combined group. This means that, in the combined group, some students had taken substantially longer, thereby increasing the average time for the group. The inclusion of both mean and median values adds an additional degree of information which may be especially useful in identifying variations in patterns.

At the University of Manitoba, in contrast to all the other studies, the median time to degree for women was less at 4.8 years than the 5.1 years for men. The reason for this is explained by looking at the minimum and maximum times for each. The minimum time for both was 2.1 years, while the maximum

for men was 9.1 years compared to 8.7 for women. The average was exactly the same for both at 5.2 years, demonstrating yet again the importance of using medians to temper the impact of extreme values.

When examining the median time to degree, variations were found among fields of study. The values ranged from 3.7 years in the Medical Sciences to 6.5 in the social sciences and 6.7 in the humanities. All fields of study exhibited high maximum values that ranged from 6.8 years in mathematics and physical sciences to 9.1 in the Humanities. Even Engineering, which typically shows rapid degree completion, had a maximum value of 7.7 years whereas a different pattern of time to degree is observed for the Humanities and Social Sciences. In the former, the minimum time is 5.1 years and it is 4.1 in the latter. The bulk of their completions therefore occur after the median time for the whole group.

Overall, the data confirm the potential variation in time to degree in any cohort and the variation among fields of study. The results suggest that, if any inter-institutional or national comparisons were to be attempted, great care would need to be taken in comparing data on the discipline or department level, in order to ensure that the variation in any one disciplinary group and/or the size of that group does not result in the promulgation of overall statistics that are, at best, not useful and, at worst, misleading.

Progress in Program

The aspects of their doctoral program which respondents were asked to evaluate fell into five main categories: the various components of the supervision they received from their advisor; both the emotional and financial support they received; other factors which may have affected them during their time in the program; and the departmental "climate."

Advisors. Students' views about the practices of their advisors can be grouped into three major categories. Students agreed most with statements about their advisor with respect to what might be termed the logistical aspects of supervision. Slightly more than 80% of students agreed that their advisors were generally available, gave them constructive criticism, and returned critiques in a timely fashion. Between two thirds and three quarters agreed that advisors did a good job of facilitating the processes associated with achieving the doctorate, such as coordinating the committee, encouraging them to publish and present scholarly work. The less positive ratings, in the 50% range, were associated with what might be termed the "mentoring" aspect of supervision. Most importantly, only 53.7% agreed that their advisors required them to provide regular progress reports. This finding confirms earlier studies which suggest that progress is impeded by poor supervisory practices (Rudd, 1985; Cude, 1987; Yeates, 1991) and needs to be addressed by the Faculty of Graduate Studies at the University of Manitoba as a matter of some urgency.

The least positive ratings were for the two statements which also might be termed mentoring but were, more specifically, the provision of "political survival skills." One in five or one in four respondents indicated that these skills were "not applicable", which also may show a lack of expectation. Advisors were most often the subject of comments made by students. A total of 19 comments made by students included four positive and 15 negative ones. The positive comments were split evenly between men and women, while men made 11 of the 15 negative comments, reinforcing the survey finding that men give lower ratings to their advisors. The explanation may lie in the structure of the questionnaire which instructed respondents to make this assessment with respect to their last advisors. The percentage of women who had changed

advisors was twice as high as the percentage of men, at 27.8% compared to 13.9%. The higher ratings of advisors by women may simply be relative to the extremely unsatisfactory rating they would have given their previous advisor(s).

The one statement which did not fit with any of the above groupings was the belief that female and male students were treated equitably. About 61.1% agreed, but 27.8% rated it as not applicable, almost all of whom were male. This could be due to male respondents not having any female colleagues and therefore not being able to respond, or it could indicate a lack of recognition of this as a serious concern for graduate women (Hall & Sandler, 1986). This statement, unlike the other statements which related to specific interactions between the student and advisor, asked the respondent to make a general evaluation of how the advisor treated female and male students. Female students may have been able to negotiate their own situations, but may still feel that a general inequity exists. This would account for their generally positive ratings of their own interactions, but their overall evaluation of inequitable treatment still prevails.

Ten out of 54 respondents had changed their advisors, some more than once. The reasons for students' decisions to change advisors were mainly related to issues of power and control. Power and control also were raised in many of the comments made by students who had not changed advisors. A number of students reported these kinds of problems; the difference between the two groups seemed to be the ability to successfully negotiate a way around the situation. One male student said "my advisor and I agreed on a pact of mutual non-involvement and non-interference." The most striking characteristic of the comments and ratings of the advisors was the polarization between the two extremes. In addition to the pivotal role of the advisor, the success of doctoral students depends on what financial and emotional support is available to them.

Financial and emotional support. The completely distinct and sometimes conflicting pattern of women's and men's responses is the most important finding in evaluating the financial and emotional support of respondents. Women generally received financial support from their spouses, whereas men usually were supported from public sources. For emotional support, women relied mainly on their advisors, while men relied on their spouses. In making policy and program decisions, the University of Manitoba needs to take these differences into account. At the same time, the differing financial situations of men and women do not detract from the conclusion that funding for doctoral students, in general, appears to be inadequate in the province of Manitoba. This conclusion is not surprising, given the reported financial difficulties of students in the survey.

The source of funding most frequently listed by 61.1% of the women respondents was their spouse/partner, as compared to 25% of men. The difference in their responses was statistically significant and may explain why the women's graduation rate was so similar to men's. Other studies have suggested that financial support is the most important factor affecting the completion of doctoral programs (Rudd, 1985; Scheinin, 1989; Gardner & Judge, 1989; Stager, 1989). On the majority of "factors affecting progress" that respondents were asked to rate, women rated their impact as more severe than men. By having stable financial support, women may have been able to compensate for the other factors which affected them more negatively than they did men. Thus, the "playing field" was effectively levelled or, to continue the metaphor, "if you support them, they will graduate." Only one woman commented on the lack of financial support, which further demonstrates that it was not a general concern for the women in this study.

Men utilized a much broader range of sources of funding and did so with greater frequency than women. Women had to rely primarily on their spouses, while men relied on their spouses but also could rely more heavily on such sources as teaching assistantships. If teaching assistantships and other such sources of funding are approximately available equally across the various fields of study, then women may not be getting their fair share of such opportunities, a conclusion which would reinforce a similar finding at the University of Toronto (Scheinin, 1989). An analysis of each department at the University of Manitoba is needed to determine the availability of funding and whether it is distributed according to the proportions of men and women in the department. Although financial support is often available only to full-time students, that factor initially should be held in abeyance, because it begs the question of why students choose to study part-time in the first place.

Despite gender, the data clearly show that students mostly rely on private sources and their comments clearly reinforce this notion. As one student wrote "We need more dollars for graduate students. It is very hard for us to work on Ph.D.'s while trying to keep our families from starving." Although the commentary of respondents on the emotional support they receive is not as dramatic, it is nonetheless essential to their progress in the program.

Similar to the situation with respect to financial support, men and women obtain their greatest emotional support from different sources. Men receive the most support from their spouses or partners, whereas women receive the highest level of support from their advisors. Women receiving the most emotional support from advisors stands in contrast to their receiving the most financial support from their partners or spouses. A difference in the interpretation of the question could account for the contrast. Women may not have had the same

expectation of emotional support from a partner that men had. Women also reported less encouragement from children and parents than did men so that, in total, "the family" was not as supportive for women.

Three implications for women arise with respect to the emotional support available to women in a doctoral program. First, women are much more vulnerable because they are more likely to be in the situation of having "all their eggs in one basket." If the department climate also is chilly and they have no personal support network, the chances of their survival would be diminished. Second, the available pool of advisors in departments, which are usually predominately male, needs to be able to adapt the supervisory role appropriately to support the women in doctoral programs. Finally, women need to have tenured female staff in the department to serve as role models. Depending on the area of study, women then also would have the option of having a female advisor, who may be better able to empathize with their situations. The lack of emotional support was very prominent in the comments that women made, second only in frequency to comments about the department climate. Men, on the other hand, did not make any comments with reference to lack of emotional support.

When the sources of both financial and emotional support are considered, women could be in a position of financial dependence upon their partners but neither expecting nor receiving emotional support for their undertaking. The theme of emotional support recurs in the other types of factors affecting students' progress in the doctoral program.

Other factors. Of the top seven factors which respondents, as a whole, indicated as having had the most impact on their progress, each one was rated at a higher impact level by women than by men. In contrast, the average rating

for each of these seven factors was at the "moderate" or less level for men. The average rating given by women was between a "moderate" and a "major" impact.

These factors can be categorized into three areas, interpersonal, financial, and academic. For women, the order of impact was interpersonal, financial and, lastly, academic while, for men, the order was academic and then financial. Interpersonal factors played almost no role for men. One factor tested as being significantly different for women, that of "difficulty in finding satisfactory child care", and serves to highlight the nature of the additional barriers faced by women.

The comments of women who withdrew from the program indicate similar concerns. One woman commented that her original advisor left the university and her alternate advisor was not supportive, while another said "my advisor (who was very sexist) tried to block my progress by inventing stories about my work and data and manipulating my advisory committee." Still a third indicated that "having a child at a critical stage in the program and the perceived lack of support from faculty" were major factors.

The factors cited in the comments by the men who withdrew were qualitatively different from the women who withdrew. They related as causative factors a lack of guidance in developing a research topic and a lack of research funding.

The factors cited as having a major impact by those who graduated related to slowness in getting back thesis drafts (one male), and lack of department members with technical expertise in the area (one female). One man cited conflicts with his advisor, on both style of working and research goals, as having had a moderate impact.

Both the comments and the analysis of the data show the tendency for men's difficulties to be primarily related to academic concerns, whereas women's tend to be primarily personal. Graduate studies policies therefore need to address the different needs of both women and men.

All of the aspects of the doctoral program which have a bearing on the student's progress, whether it is the advisor, the financial and emotional resources of the student, or any of the other factors, are connected in some degree to the home department of the student. An assessment of the "departmental climate" is critical for providing the context within which the student functions.

Departmental climate. The results from the questions about various aspects of the department seem to confirm differences among departments, at least within the broad groupings of field of study. The significant differences in responses found among fields of study, with respect to financial support being fairly distributed, and feelings of social isolation from the other students in the department, confirm findings of earlier studies (Girves & Wemmerus,1988; Miselis, Mcmanus, & Kraus, 1991). An analysis of the responses by department was not possible due to the size of the cohort, but the differences in the patterns of responses within the larger grouping of fields of study point to a need for a larger study in order to investigate results on a departmental basis.

Of the 10 statements that respondents were asked to assess, four received the most positive assessment from women, while five were most positively endorsed by men, and one received an identical rating. Women were much more ambivalent, i.e., more likely to have indicated they were "undecided" in their evaluation of many of the aspects of their departments, thereby confirming that women experience graduate school differently (Hall & Sandler, 1986).

Further, their very low rating of the issue of equitable treatment was significantly different from men's but it is similar to the kind of gender differences in satisfaction found by Nerad & Stewart (1991). The comments of women reinforced this finding. Women were more likely to comment unfavourably about the departmental climate than any other aspect of the program. Although men also commented about the department climate, women did so twice as often as men did. Three of the eight comments made by men about the climate indicated that they considered the department sexist in its treatment of women. In short, the general climate for women is still "chilly" (Hall & Sandler, 1986).

Approximately three out of four respondents had a fairly positive view of their department with respect to their one-on-one interactions, such as in class or with individual faculty or their advisory committee. They were less positive about whether the department was supportive of graduate students, and whether fairness prevailed in the distribution of financial support. One student commented that the department was racist, noting at the end of the commentary "I am a white male." These results illustrate once again the variability of the doctoral experience, depending on the balance of negative and positive components. For example, a student who has a supportive advisor and a good committee or some other combination of support can weather the negative climate of hostility from other department members and the favouritism shown to other graduate students. No matter what the student's department or gender, completing a doctoral program is still a very individual experience. The comments of one woman capture this recurring and sometimes complex situation. "The most difficult part of my Ph.D. program was: not recognizing how little support or understanding there would be for me in the Department

(professors) and in my personal network of family and friends for doing this work." She credits her eventual success to her third advisor who "was great about helping me complete the thesis" and "who was very supportive of me" and to finding a good feminist therapist who "helped me construct a personal support network" and "helped me reframe my relationship with my advisor (#3) to learn how to negotiate successfully for the support I needed." She also described the subtlety of the gender discrimination, stating that "most of the discrimination was covert, indirect, or veiled and therefore terribly confusing."

In contrast to the complexities of the process for some students, others found that all of the components functioned smoothly, as illustrated in this female student's comments:

> My experience with my principal Ph.D. advisor and all the professors in my department was extremely positive. They treated me with respect, helped me in any way they could and in general got me in and out of the program as quickly as possible. (The fact that I was entirely non-university funded may have had a bearing on this.) A very pleasant experience.

The overall comments made by students demonstrate both the positive and negative aspects of the departmental climate in various disciplines. As with many of the aspects considered in this study, the comments of those who withdrew or were continuing were not all that divergent, suggesting that the problems students encounter are often similar, but the outcome rests on whether they are able to obtain the appropriate support to deal with them effectively. Although the views of students who withdrew or were still continuing often exhibited similarities with those of students who graduated, specific questions elicited responses which demonstrate the extent to which conflicts can arise.

Factors Cited by Students Withdrawing or Seeking Extensions

As might be expected, some students who withdrew did so because of conflicts with their jobs or logistical problems. More disturbing are the situations wherein students reported major problems with their committees, especially when they were in good academic standing; indeed, one was "all but dissertation."

Similarly, students who had sought extensions did so for predictable reasons, such as personal illness or conflict with job or family responsibilities, but other factors also contributed. One student had conflicts with two previous advisors and found the department not supportive of her research. Another student found the advisory committee and advisor not supportive and was required to make major changes in the thesis in the final stages. These examples portray an unacceptable level of stress being imposed on students and also a drain on the department's resources when students spend so long in the program. The University of Manitoba needs to monitor the progress of students and to intervene, if necessary, to provide a mechanism whereby both the student and the department can access requisite support to resolve the situation.

Summary

Completion rates for the 1984-85 doctoral cohort at the University of Manitoba were similar for men and women, but higher overall and showing different variations by field of study than reported elsewhere. The median amount of time required to complete a doctoral degree was the same as shown in the Ontario study, but markedly dissimilar with respect to gender and field of study.

The respondents to the questionnaire provided insight into how students experienced various aspects of their program. Advisors tended to get high marks for providing good logistical support, but were less favourably rated on mentoring and on the equitable treatment of women and men. One in five students changed advisors and some changed more than once, with most of the changes related to issues of power and control. Women were twice as likely as men to change advisors. Financial support for students came mostly from private sources, demonstrating the problem of underfunding of graduate students in the province of Manitoba. Women were much more likely to rely on their spouses, which may indicate they are not getting their fair share of resources such as teaching assistantships. Emotional support for respondents also came from different sources; for men it came mainly from their spouses, while for women it came mainly from their advisors. The factors which most affected women were interpersonal ones whereas men's concerns were primarily academic. These factors were all interrelated with the departmental climate, which women often found to be chilly, with a significant difference with respect to the assessment of equitable treatment of female and male students. Among the fields of study, there were significant differences in the perception of the fairness of the distribution of financial support and the feelings of social isolation from other students. The pervasive influence of the department was further reinforced by the finding that most of the students who withdrew or required extensions had experienced interpersonal difficulties with one or more of their advisors, departments, or committees.

The factors which affect the completion rate and median time to degree at the University of Manitoba are complex and are closely interwoven with gender and field of study. More specifically, the results demonstrate that departments

have the power and, indeed, the responsibility to positively affect student outcomes. The next section provides specific recommendations on how this could be achieved.

Conclusions and Recommendations

The completion rates of doctoral cohorts at the University of Manitoba are higher overall than reported for doctoral cohorts elsewhere, with less disparity between the rates for women and men and among fields of study. The median time to degree is similar to recent reports but with noticeable differences by gender and by field of study. The success of doctoral cohorts reflects favourably on the institution and raises further doubts as to the validity of the methodology employed by a national magazine which ranked the University of Manitoba last among fifteen doctoral institutions. That apparent contradiction only emphasizes the pressing need for universities to respond to the increased public scrutiny by providing "outcome" measures such as doctoral completion rate and time to degree.

In carrying out additional studies, the cohort methodology is essential, including the use of median time to degree, both by gender and field of study, for either internal or external comparisons. The progress of students should be evaluated annually and those who have spent more than the established median time to degree for their program should be identified. Both the students and the departments should be asked to evaluate the situation, with a view to facilitating and reporting on whatever support is required for a mutually satisfactory resolution. Keeping in mind the extent to which the abuse of power was often a component of the barriers students faced, great care must be taken that the process is not punitive for the students. Previous conclusions that poor

supervisory practices affect progress are confirmed by this study. A set of guidelines should be distributed to all graduate students and advisors to facilitate the supervisory process.

Women experienced almost every aspect of the doctoral program differently than men and the intensity of the effect was usually greater. The University of Manitoba must focus on improving the "chilly climate" by educating faculty on this issue, by continuing to incorporate inclusive curricula, and especially by hiring and retaining female academics to serve as advisors, mentors, and role models.

In any part of the analyses where comparisons were made by field of study, variations inevitably resulted. The University should expand on these results, and provide specific information for the use of departments, information which was impossible to provide from this study. The Interdisciplinary Program (IDP), which was identified as one of the fields of study, needs to be reviewed with respect to the integration of students in the designated "home" department.

A facet of the doctoral program that requires special attention is the area of financial support, in which differences were revealed, both by gender and by field of study; these discrepancies need to be investigated further by the University. Externally, the University of Manitoba should use the data on the superior performance of its doctoral program to lobby the provincial government for improved levels of financial support for all graduate students, and to a level comparable with other provinces.

In order to address the issues raised by this study, the following specific recommendations are provided for researchers, the Faculty of Graduate Studies, and for the University of Manitoba as a whole. Based on the results of this study,

doctoral students at the University of Manitoba and the factors affecting their completion rates and time to degree, by gender and by field of study, it is recommended that:

Researchers at other institutions across Canada

1. Adopt the cohort methodology advocated by this and earlier studies (Yeates, 1991; Bowen & Rudenstine, 1992) and provide comparable data on the completion rate and median time to degree, for institutional use both internally and externally and having due regard to the unique nature of doctoral programs in the various disciplines.

The Faculty of Graduate Studies in conjunction with the appropriate administrative offices:

1. Provide to departments a benchmark analysis of the completion rates and median time to degree of their students, by gender, for a minimum of five doctoral cohorts.
2. Forward annually to departments a list of currently enroled doctoral students whose number of years in the program is greater than the median established in recommendation 1.
3. Compile and forward to departments statistics on the percentage distribution, by gender, of all the financial assistance annually awarded to doctoral students in each department, to assess the extent of gender inequities identified in this and other studies.
4. Require departments to report to the Board of Graduate Studies what proactive steps have been taken to address any of the issues arising from the results of recommendations one to three.

5. Formulate a set of guidelines, involving all the parties concerned, which delineate the responsibilities of advisors and students.

6. Review, revise, and amend the organization and administration of the Interdisciplinary Program, to ensure, inter alia, that students have a "home" department or affiliation.

7. Attract more of the "best and brightest" students by publishing the overall statistics from this study, which appear to be very favourable to the University of Manitoba.

The University of Manitoba:

1. Disseminate the results of this study to validate and bring into the public forum of the university community the concerns related to inequities in the treatment of students, between genders and among departments.

2. Revise the criteria for program reviews to evaluate whether proactive steps have been taken to improve the chilly climate for women, for example, to recognize the need for role models for women students by attracting and also retaining female academics.

3. Amend the criteria determining the relative financial priorities of units within the University of Manitoba to reward, in those areas where women are under- represented, improvements which have been made, over the last two years, in the numbers and percentages of women who are graduate students and permanent faculty appointments.

4. Publish widely the data on the positive performance of doctoral programs at the University of Manitoba, thereby providing a "performance indicator" to the citizens of Manitoba and to the provincial government as a justification for improved funding of graduate student support.

The preceding recommendations were formulated on the basis of the results of this study and are an attempt to contribute to the development of appropriate methodology for collecting and analyzing data on completion rates and time to degree in Canada. The results provide information for the internal use of the University, detailing its successes as well as opportunities for further improving the doctoral experience. The results also provide another "performance indicator" which this and other Canadian universities will need if they are to demonstrate the efficiency and effectiveness of the graduate enterprise.

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Appendix

May, 1994

Dear Colleague,

I am contacting you as one of the group of students who entered the doctoral program at the University of Manitoba in the 1984-85 session. I am conducting a study to fulfil my thesis requirement for the Master of Education degree at the University of Manitoba. The purpose of the attached questionnaire is to assess your experiences at the University of Manitoba. In order that I may present a balanced picture of an entire group of doctoral students, I need input from each of you, regardless of the outcome of your program.

All aspects of this survey have been approved by the Ethics Committee of the Faculty of Education. Your response will remain strictly confidential. You will notice that your questionnaire has a number on it. This is to allow me to follow up those who do not respond. Once the research is complete and the results mailed to the respondents, the list linking names to questionnaire numbers will be destroyed.

Your assistance is essential in helping to establish baseline data on the experiences of doctoral students at the University of Manitoba. It will take about half an hour to complete and I will send you a summary of the results, in appreciation of your efforts. If you have any questions about the study, don't hesitate to contact me at 204-474-9411, Monday to Friday between 8:30 and 4:30.

Thank you for your assistance. Please return your completed questionnaire as soon as possible, preferably by May 18th, in the enclosed postage paid envelope.

Sincerely,

Thelma Lussier

Thelma G. Lussier

Enclosed

SURVEY OF DOCTORAL STUDENTS AT THE UNIVERSITY OF MANITOBA

DEFINITIONS

The following terms are used throughout the questionnaire and are defined as follows:

Department is used to refer to either a department or a non-departmentalized faculty.

Unless otherwise stated, **your program** or **your doctoral program** refers to the graduate program that you registered in when you were first admitted in 1984-85 to the University of Manitoba.

Advisor refers to your thesis supervisor.

Academic year runs from September 1st of one year to August 31st of the following year.

SECTION A

This section is about your status when you first enroled in the doctoral program in 1984-85.

1. What was your main occupation immediately prior to beginning your doctoral program? (CIRCLE THE RESPONSE WHICH BEST DESCRIBED YOUR SITUATION AT THAT TIME)

I WAS EMPLOYED AND ENROLED IN A GRADUATE PROGRAM..1

I WAS EMPLOYED.....2

I WAS ENROLED FULL TIME IN A GRADUATE PROGRAM.....3

I WAS ENROLED PART-TIME IN A GRADUATE PROGRAM.....4

I WAS UNEMPLOYED.....5

OTHER (PLEASE SPECIFY) _____6

2. What was your marital status when you enroled?

SINGLE.....1

MARRIED/CO-HABITING.....2

SEPARATED OR DIVORCED.....3

WIDOWED.....4

3. How important were the following reasons for your choosing to enrol in a doctoral program at the University of Manitoba? (CIRCLE A RESPONSE FOR EACH ENTRY)

	Major Reason	Minor Reason	Not Applic
IT HAD THE ADVISOR I WANTED	1	2	3
THE U.OF MANITOBA WAS THE CLOSEST	1	2	3
MY JOB WAS IN MANITOBA	1	2	3
IT HAD THE PARTICULAR PROGRAM I WANTED	1	2	3
MY SPOUSE/PARTNER WAS STUDYING THERE	1	2	3
MY SPOUSE'S/PARTNER'S JOB DICTATED THAT WE STAYED IN MANITOBA	1	2	3
LOWER COST PROGRAM THAN ELSEWHERE	1	2	3
OTHER (PLEASE SPECIFY)	1	2	3

_____

4. How many dependent children, if any, did you have when you first enroled? (STATE NUMBER)_____

4a. Of these, how many were five years of age or younger at that time? (STATE NUMBER)_____

5. What was/were the main source(s) of financial support when you **began** your doctoral program? (CIRCLE ALL THAT APPLY)

SPOUSE/PARTNER.....1
PERSONAL SAVINGS.....2
PARENTS OR OTHER RELATIVES.....3
EMPLOYMENT OUTSIDE THE UNIVERSITY.....4
STUDENT TEACHING ASSISTANTSHIP.....5
PROFESSOR'S RESEARCH FUNDING.....6
STUDENT LOAN.....7
SCHOLARSHIP.....8
FELLOWSHIP.....9
BURSARY.....10
OTHER AWARD.....11
OTHER (PLEASE SPECIFY)_____12

_____

6. From the sources of financial support you circled in the question above, write the numbers of the three (3) most important ones in the space provided below.

FIRST MOST IMPORTANT SOURCE_____
SECOND MOST IMPORTANT SOURCE_____
THIRD MOST IMPORTANT SOURCE_____

SECTION B

This section is about your experience with your advisor(s) during your doctoral program.

7. At the time you began your program, what stage were you at with respect to selecting an advisor? (CIRCLE THE RESPONSE WHICH BEST DESCRIBED YOUR SITUATION)

I DID NOT HAVE AN ADVISOR.....1

I HAD SELECTED AN INTERIM ADVISOR.....2

I HAD AN INTERIM ADVISOR ASSIGNED TO ME.....3

I HAD SELECTED A PERMANENT ADVISOR.....4

I HAD A PERMANENT ADVISOR ASSIGNED TO ME.....5

8. Regardless of when or how you selected your advisor, what was the gender of your first advisor?

MALE.....1
FEMALE.....2

9. Which of the following factors were involved in establishing your supervisory relationship? (CIRCLE ALL THAT APPLY)

MY ADVISOR WAS HIGHLY REGARDED IN MY AREA OF INTEREST.....1

I KNEW MY ADVISOR AS AN INSTRUCTOR WHEN I WAS IN A MASTER'S OR UNDERGRADUATE PROGRAM.....2

MY ADVISOR WAS RECOMMENDED BY THE DEPARTMENT HEAD OR GRADUATE CO-ORDINATOR.....3

MY ADVISOR WAS RECOMMENDED BY OTHER GRADUATE STUDENTS.....4

MY ADVISOR WAS RECOMMENDED BY ANOTHER PROFESSOR...5

IT WAS A MATTER OF MUTUAL CONVENIENCE.....6

MY ADVISOR WAS ASSIGNED.....7

OTHER (PLEASE SPECIFY).....8

_____

10. During the time you were enroled in your program, did you change advisors? (CIRCLE YOUR RESPONSE)

YES.....1
NO.....2

IF YOU ANSWERED YES, CONTINUE ON TO THE NEXT QUESTION.

IF YOU ANSWERED NO, SKIP TO QUESTION #14.

11. If you changed advisors, which of the following were factors in your decision? (CIRCLE ALL THAT APPLY)

MY ORIGINAL ADVISOR LEFT THE UNIVERSITY.....1

MY AREA OF INTEREST CHANGED SO I HAD TO CHANGE ADVISORS.....2

I DELIBERATELY CHANGED MY AREA SO THAT I COULD CHANGE ADVISORS.....3

MY ORIGINAL ADVISOR WAS INTERIM ONLY.....4

MY ORIGINAL ADVISOR TRIED TO CONTROL MY WORK.....5

MY ORIGINAL ADVISOR ASKED ME TO FIND ANOTHER SUPERVISOR.....6

OTHER (PLEASE SPECIFY)_____7

_____

_____

12. From the factors listed in question 11 above, please list the most important one in the space provided below.

MOST IMPORTANT FACTOR_____

13. What was the gender of your subsequent advisor? (CIRCLE YOUR RESPONSE)

MALE.....1
FEMALE.....2

14. Using the scale below, indicate the extent of your agreement or disagreement with the following statements about your advisor. (CIRCLE THE RESPONSE WHICH BEST REFLECTS YOUR ASSESSMENT. IF YOU CHANGED ADVISORS, MAKE YOUR ASSESSMENT WITH RESPECT TO YOUR FINAL ADVISOR.)

	Agree	Dis-Agree	Not Applic
MY ADVISOR:			
ENCOURAGED ME TO PUBLISH MY WORK WHILE IN THE PROGRAM.....	1	2	3
ENCOURAGED ME TO PRESENT MY WORK AT SCHOLARLY CONFERENCES.....	1	2	3
ASSISTED (WILL ASSIST) ME IN FINDING EMPLOYMENT.....	1	2	3
OFTEN DID NOT HAVE TIME TO MEET WITH ME TO DISCUSS MY WORK.....	1	2	3
WAS KNOWLEDGEABLE ABOUT THE FACULTY OF GRADUATE STUDIES REGULATIONS.....	1	2	3
REQUIRED ME TO PROVIDE REGULAR PROGRESS REPORTS TO ENSURE MY PROGRESS TOWARD COMPLETING MY PROGRAM.....	1	2	3
GAVE ME CONSTRUCTIVE CRITICISM ON MY WORK.....	1	2	3
WAS NOT FLEXIBLE IF I HAD A PERSONAL PROBLEM.....	1	2	3
TRIED TO SECURE FINANCIAL SUPPORT FOR ME.....	1	2	3
TREATED FEMALE AND MALE STUDENTS EQUITABLY.....	1	2	3

GAVE ME USEFUL ADVICE ON HOW TO SURVIVE IN GRADUATE SCHOOL.....1.....2.....3

TREATED ME AS A JUNIOR COLLEAGUE.....1.....2.....3

KEPT ME INFORMED OF DEPARTMENTAL "POLITICS".....1.....2.....3

INCLUDED ME IN DEPARTMENTAL SOCIAL ACTIVITIES.....1.....2.....3

RETURNED CRITIQUES OF MY WORK IN A TIMELY FASHION.....1.....2.....3

MY ADVISOR WAS GENERALLY AVAILABLE TO ME (EXCEPT FOR A VACATION PERIOD OF UP TO FOUR WEEKS DURING THE MAY TO SEPTEMBER PERIOD).....1.....2.....3

MY ADVISOR DID A GOOD JOB OF CO-ORDINATING THE WORK OF MY COMMITTEE.....1.....2.....3

OTHER COMMENTS_____

SECTION C

This section is about your experiences during your doctoral program, regardless of whether you have graduated, withdrawn, or are still continuing in your program.

15. During the total time you were enroled in the doctoral program, about what percentage of the time were you classified as full-time and/or part-time? (STATE PERCENTAGE)

FULL-TIME _____% PART-TIME _____%

16. From whom have you received (did you receive) practical assistance with tasks such as word processing, data analysis, photocopying, during your doctoral program? (CHECK ALL THAT APPLY)

NO ONE.....1
SPOUSE/PARTNER/FRIEND.....2
ADVISOR'S SECRETARY/OTHER STAFF.....4
OTHER SUPPORT STAFF.....5
EMPLOYER.....6
PAID HELPER.....7
OTHER (PLEASE SPECIFY)_____8

17. How encouraging of your doctoral program were (are) the following persons? (CIRCLE THE NUMBER WHICH IS CLOSEST TO YOUR OPINION IN WHICH 1=VERY ENCOURAGING, 2=ENCOURAGING, 3=NEUTRAL, 4=DISCOURAGING, 5=VERY DISCOURAGING, AND 6=NOT APPLICABLE)

	VE	E	N	D	VD	NA
SPOUSE/PARTNER	1	2	3	4	5	6
CHILDREN	1	2	3	4	5	6
PARENTS/RELATIVES	1	2	3	4	5	6
ADVISOR	1	2	3	4	5	6
OTHER PROFESSOR(S)	1	2	3	4	5	6
OTHER GRADUATE STUDENT(S)	1	2	3	4	5	6
EMPLOYER	1	2	3	4	5	6
FRIEND (OTHER THAN GRADUATE STUDENT)	1	2	3	4	5	6
OTHER (SPECIFY)	1	2	3	4	5	6

_____

_____

18. To what extent did any of the following factors affect your progress in the doctoral program? (CIRCLE THE NUMBER WHICH BEST REFLECTS YOUR EXPERIENCE)

	Major Extent	Moderate Extent	Minor Extent	Not Applic.
MY LACK OF SKILLS IN WRITTEN ENGLISH	1	2	3	4
MY LACK OF SKILLS IN SPOKEN ENGLISH	1	2	3	4
CONFLICT WITH MEMBER(S) OF THE DEPARTMENT	1	2	3	4
LOSS OF INTEREST IN STUDIES	1	2	3	4

	Major Extent	Moderate Extent	Minor Extent	Not Applic.
PERSONAL HEALTH PROBLEMS	1	2	3	4
HEALTH PROBLEMS IN FAMILY	1	2	3	4
CHILDBIRTH/ADOPTION	1	2	3	4
MARITAL PROBLEMS	1	2	3	4
DIFFICULTY IN FINDING SATISFACTORY CHILD CARE	1	2	3	4
FINANCIAL PROBLEMS	1	2	3	4
SEXUAL HARASSMENT	1	2	3	4
DISCRIMINATION	1	2	3	4
CONFLICTS WITH JOB	1	2	3	4
PROBLEMS WITH VISA OR IMMIGRATION STATUS	1	2	3	4
CONFLICT WITH SPOUSE'S OR PARTNER'S JOB PLANS	1	2	3	4
CONFLICT WITH SPOUSE'S OR PARTNER'S STUDY PLANS	1	2	3	4
MOVING/RELOCATING	1	2	3	4
LACK OF A PERSONAL SUPPORT NETWORK	1	2	3	4
LACK OF A SUPPORT NETWORK OF OTHER GRADUATE STUDENTS	1	2	3	4
LACK OF UNDERSTANDING/SUPPORT FOR THE QUALITATIVE RESEARCH THAT I WAS DOING	1	2	3	4
OTHER (PLEASE SPECIFY)	1	2	3	4

_____

_____

_____

19. Whom did you consult about any of these issues and how satisfied were you with the response you received? (CHOOSE ALL THAT APPLY BY CIRCLING THE NUMBER WHICH BEST REPRESENTS YOUR LEVEL OF SATISFACTION IN WHICH 1=VERY SATISFIED, 2=SATISFIED, 3=UNDECIDED, 4=DISSATISFIED, 5=VERY DISSATISFIED AND 6=NOT APPLICABLE)

Person or Office Consulted	Level of Satisfaction					
	VS	S	U	D	VD	N/A
NO ONE	1	2	3	4	5	6
MY ADVISOR	1	2	3	4	5	6
GRADUATE COORDINATOR	1	2	3	4	5	6
OTHER PROFESSOR	1	2	3	4	5	6
FACULTY OF GRADUATE STUDIES	1	2	3	4	5	6
DEPARTMENT HEAD	1	2	3	4	5	6
DEPT. SUPPORT STAFF.	1	2	3	4	5	6
UNIV. COUNSELLING SERVICE	1	2	3	4	5	6
UNIV.HEALTH SERVICE	1	2	3	4	5	6
SEXUAL HARASSMENT INVESTIGATION OFFICE	1	2	3	4	5	6
ANOTHER STUDENT	1	2	3	4	5	6
FAMILY MEMBER	1	2	3	4	5	6
FRIEND	1	2	3	4	5	6
OTHER (SPECIFY)	1	2	3	4	5	6

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20. What is your level of agreement with the following statements about your doctoral program. (CIRCLE THE RESPONSE WHICH BEST REFLECTS YOUR OPINION ON A SCALE OF 1 TO 6 WHERE 1=STRONGLY AGREE, 2=AGREE, 3=UNDECIDED, 4=DISAGREE, 5=STRONGLY DISAGREE AND 6=NOT APPLICABLE)

	SA	A	U	D	SD	NA
THE DEPARTMENT WAS/IS SUPPORTIVE OF GRADUATE STUDENTS	1	2	3	4	5	6
FINANCIAL SUPPORT FOR GRADUATE STUDENTS WAS/IS FAIRLY DISTRIBUTED IN MY DEPARTMENT	1	2	3	4	5	6
I FELT/FEEL THAT I RECEIVE(D) LESS ATTENTION FROM PROFESSORS THAN OTHER STUDENTS	1	2	3	4	5	6

FEMALE AND MALE STUDENTS WERE/ARE
TREATED EQUITABLY IN MY DEPT.....1...2...3...4...5...6

I FELT/FEEL SOCIALLY ISOLATED FROM
THE REST OF THE STUDENTS IN
MY DEPARTMENT.....1...2...3...4...5...6

I BELIEVE(D) THAT MY
CONTRIBUTIONS IN CLASS
WERE/ARE VALUED.....1...2...3...4...5...6

I HAVE BEEN TREATED AS A COLLEAGUE
BY ONE OR MORE PROFESSOR(S).....1...2...3...4...5...6

PROFESSORS CALL(ED) UPON MEN
AND WOMEN EQUALLY DURING GROUP
DISCUSSIONS.....1...2...3...4...5...6

MY ADVISORY COMMITTEE WAS
VERY SUPPORTIVE OF MY WORK.....1...2...3...4...5...6

I WAS REQUIRED TO MAKE MAJOR
CHANGES IN MY THESIS
IN THE FINAL STAGES.....1...2...3...4...5...6

21. In the table below indicate (approximately) the academic year in which you completed the following stages of your doctoral program. (NOTE THAT THE ACADEMIC YEAR RUNS FROM SEPT 1 TO AUG. 31. THEREFORE, FOR STUDENTS WHO ENTERED IN 1984-85, YEAR 1 ENDED ON AUG. 31, 1985, YEAR 2 ON AUG. '86, ETC. THE STAGES ARE NOT NECESSARILY IN ORDER AND ONE OR MORE STAGES MAY HAVE BEEN COMPLETED IN THE SAME YEAR)

Stage	End of Year
COURSEWORK COMPLETED	1..2..3..4..5..6..7..8..9
CANDIDACY EXAMS PASSED	1..2..3..4..5..6..7..8..9
ADVISORY COMMITTEE IN PLACE	1..2..3..4..5..6..7..8..9
THESIS PROPOSAL APPROVED	1..2..3..4..5..6..7..8..9
RESEARCH COMPLETED	1..2..3..4..5..6..7..8..9
FIRST DRAFT REVIEWED BY COMMITTEE	1..2..3..4..5..6..7..8..9
FINAL DRAFT SUBMITTED	1..2..3..4..5..6..7..8..9
THESIS DEFENCE HELD	1..2..3..4..5..6..7..8..9

IF YOU HAVE ALREADY GRADUATED, CONTINUE ON TO SECTION D, QUESTION #22.

IF YOU HAVE WITHDRAWN FROM YOUR DOCTORAL PROGRAM, SKIP TO SECTION E QUESTION #23.

IF YOU ARE STILL CONTINUING IN YOUR PROGRAM, SKIP TO SECTION F, QUESTION #24.

SECTION D

This section is to be answered only by those who have completed their doctorates as of October 1993.

22. What is your evaluation of the following statements with respect to your **present** situation? (CIRCLE YOUR RESPONSE)

	Yes	No	Not Appl
I HAVE A JOB WHICH GENERALLY REQUIRES MY DOCTORAL TRAINING	1	2	3
I HAVE A JOB WHICH UTILIZES MY DOCTORAL TRAINING	1	2	3
MY JOB DOES NOT REQUIRE A DOCTORATE BUT HAVING IT HAS INCREASED MY JOB SATISFACTION	1	2	3
I AM CURRENTLY LOOKING FOR WORK	1	2	3
I AM IN A POST-DOCTORAL PROGRAM	1	2	3
COMPLETING MY DOCTORATE INCREASED MY SELF-ESTEEM	1	2	3
I AM CURRENTLY ENROLED IN A PROFESSIONAL OR OTHER TYPE OF TRAINING PROGRAM	1	2	3
OTHER (PLEASE SPECIFY)	1	2	3

PLEASE SKIP TO SECTION G ON THE LAST PAGE.

SECTION E

This section is to be answered only by those who have withdrawn from their doctoral program.

23. Which of the following statements represent your reasons for withdrawing from your doctoral program? (CIRCLE ALL THAT APPLY)

I COULD NO LONGER AFFORD TO CONTINUE.....1

I LOST INTEREST IN MY PROGRAM.....2

I HAD A MAJOR CONFLICT WITH MY ADVISOR.....3

MY RESEARCH WAS CHALLENGING THE "STATUS QUO" IN MY DEPARTMENT.....4

I SUSPECTED MY COMMITTEE WOULD NEVER ACCEPT MY THESIS.....5

I HAD TO RELOCATE DUE TO FAMILY OBLIGATIONS.....6

MY PROGRAM WAS SERIOUSLY INTERFERING WITH MY RELATIONSHIP WITH MY PARTNER.....7

OTHER (PLEASE SPECIFY).....8

_____

_____

_____

_____

_____

_____

_____

_____

_____

PLEASE SKIP TO THE SECTION G ON THE LAST PAGE.

SECTION F

This section is to be answered only by those who have been granted an extension to finish their doctoral programs after October 1993.

24. Which of the following stages of your doctoral program remains to be completed? (CIRCLE YOUR RESPONSE FOR EACH STAGE)

	COMPLETED	NOT COMPLETED	PARTIALLY COMPLETED
COMPLETE RESEARCH	1	2	3
CANDIDACY EXAMS PASSED	1	2	3
SUBMISSION OF FIRST DRAFT	1	2	3
SUBMISSION OF FINAL DRAFT	1	2	3
COMMITTEE REVIEW - FINAL DRAFT	1	2	3
THESIS DEFENCE	1	2	3
THESIS APPROVED BUT REQUIRED TO MAKE CHANGES	1	2	3
OTHER (PLEASE SPECIFY)	1	2	3

_____

_____

25. What were your reasons for seeking an extension? (CIRCLE ALL THAT APPLY)

PERSONAL ILLNESS.....1
FAMILY RESPONSIBILITIES (EXCLUDING CHILDBIRTH).....2
CHILDBIRTH.....3
BREAKUP OF A SIGNIFICANT RELATIONSHIP.....4
LOST INTEREST IN MY PROGRAM.....5
CONFLICT WITH JOB.....6
CONFLICT WITH SPOUSE'S/PARTNER'S JOB.....7
CONFLICT WITH SPOUSE'S/PARTNER'S STUDIES.....8
I NEEDED A BREAK FROM THE STRESS OF THE PROGRAM.....9
OTHER (PLEASE SPECIFY).....10

_____

_____

26. When do you expect to graduate? (CIRCLE YOUR RESPONSE)

DON'T KNOW.....1
IN 1994.....2
IN 1995 OR LATER.....3

SECTION G

This section is for your comments.

PLEASE USE THIS SECTION TO MAKE ANY ADDITIONAL COMMENTS YOU MIGHT HAVE ABOUT YOUR EXPERIENCES AS A DOCTORAL STUDENT OR TO EXPAND ON ANY ASPECT OF THE QUESTIONS IN THE SURVEY. ADDITIONAL SPACE IS AVAILABLE ON THE BACK PAGE.

THANK YOU FOR YOUR ASSISTANCE. PLEASE RETURN YOUR SURVEY IN THE ENCLOSED POSTAGE PAID ENVELOPE TO:

Thelma G. Lussier
201 Allen Building
University of Manitoba
Winnipeg, Manitoba
R3T 2N2